The RUBBER AGE

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LATE NEWS of the Industry

Leaders in the Industry Comment Favorably on the New Tire Excise Tax—

O'Neill Calls Tax a Blessing in Disguise in That Motorists Are Now Seeing the True Value in the Present Tire at Present Prices—Tax Brings First Price Increase in Six Years

THE inauguration of the new excise tax on tires and tubes and rubber sporting goods has called forth a number of comments from the leaders of the rubber industry, notably William O'Neil, president of General Tire and Rubber Company and J. D. Tew, president of B. F. Goodrich Company.

"The federal tax on tires and tubes, which has just become effective, is a blessing in disguise, to industry, to workmen in tire factories and to motorists themselves," said Mr. O'Neil.

"It was the one thing needed to make motorists realize that they have been buying tires at prices far less proportionately than they have been paying for other necessities of life. Special taxes are, as a rule of course, unpleasant necessities and should be lifted as soon as conditions warrant but, just now, this tax has proved to be an important business impetus.

"For six years, tire prices had been dropping gradually but steadily until they had reached a point 20 per cent below the average level of the present-day cost of living, much as that has been reduced in the past three years.

"Millions of motorists, on unsafe tires, had been putting off buying the safe, new rubber they needed, thinking possibly the price might drop again. In the past few weeks, many thousands of them have become convinced that tire prices have reached their nadir and that delay in buying will only mean that they will pay more later.

"Some months ago, I expressed the opinion that, when this condition was generally realized by the buying public, there would be an actual shortage of tires. For some weeks past, this has literally been true. Tire manufacturers have been hard pressed to produce enough tires to meet the greatly-increased demand. Both in units produced and shipped and in dollars and cents volume, the month of June has been the biggest month our company ever has had since it was organized 17 years ago. Now that the trend of tire prices has turned upward, we believe there is good reason to expect that the increased demand will continue steadily, although possibly not at the high level reached just before the federal tax law became effective.

"The tire industry is always one of the first to feel the return swing of the business pendulum. It usually comes back about six months before business generally.

"The new federal tax will be an important factor in convincing motorists that it is more economical to drive on good tires than on ordinary tires for the tax, being on a rubber poundage basis, is no heavier on the best tires than on poor tires."

The increase in automotive tire and tube prices announced by tire manufacturers to meet the federal excise tax, is the first price advance made in six years by the

Scanning the Headlines

TIRE OFFICIALS voice opinion on new excise tax on tires, tubes and rubber sporting goods . . . TAX brings first increase in tire prices in six years . . . FIRESTONE still opposes price advance unless mail order houses agree . . . CANADIAN GOODYEAR meets dividend and shows fair report for past year . . . HARLAN DEPEW elected to head Committee D-11 on Rubber Products for A. S. T. M. during coming year . . . FIRESTONE reports a profit of a million and a half for the six months ending April 30 . . . FISK'S improved sales brings further demands from bondholders . . . Streamline tires go on Army pursuit planes . . . More activity reported in several rubber centers, with production schedules and payrolls stepped up in many companies.

rubber industry, according to J. D. Tew, president of the Rubber Manufacturers' Association and president of The B. F. Goodrich Company.

"Tire manufacturers were faced with the necessity of either assuming the tax and continuing on a precarious and ruinous low price basis, or following the dictates of sound business by adjusting prices to offset the taxation," Mr. Tew said.

"Industry leaders in choosing the latter course have clearly indicated that they acknowledge the definite responsibility of maintaining this business on a sane course leading to economic security with continued employment for present forces and ultimate fair returns for dealers and shareholders."

Firestone Makes Million and a Half Profit During 6-Months Ended April 30

A NET profit of $1,639,739 for the half year ending April 30 was made by the Firestone Tire & Rubber Company according to a statement given out after a directors' meeting of the company on June 24, at which the regular quarterly dividend of 25 cents a share on common stock was voted.

The statement which was issued by Harvey S. Firestone, Sr., chairman, was, in part, as follows:

"Net profits of the Firestone Tire and Rubber Company and all subsidiaries, including Firestone Service Stores, for the six months ending April 30, 1932, after deducting depreciation, interest, federal taxes and Liberian development expenditures, were $1,639,739. This compares with a profit of $2,908,553 for the same period last year.

"This being an interim statement, inventories were carried at cost."

The profit is equivalent after preferred dividends paid, to four cents a share (par $10) on 2,050,487 shares of common stock. This compares with $2,908,553, or 56 cents a share on 2,154,861 common shares for the six months ended April 30, 1931.

The directors declared the regular quarterly common dividend of 25 cents a share, payable July 20, to stock of record July 5.

The dividend will go to the holders of 2,050,487 shares of common stock outstanding.

Improvement in Fisk Brings Demand for 40% From Bondholders Group

THE protective committee for holders of Fisk Rubber Company bonds and notes, headed by Ferdinand Eberstadt, has announced that in view of the improvement of the company's financial position it now favors a cash distribution by the receivers of about 40 per cent to the security holders. Previously the committee had said that it favored a 20 per cent distribution. It is explained that as a result of heavy orders in anticipation of the new taxes on tires and tubes June sales of the company resulted in a particularly large turnover of inventory.

"The committee is advised that in the near future receivers of the company should have about $8,500,000 in cash and United States Government securities in addition to about $6,500,000 of inventory and accounts receivable," the committee's statement adds. "This should permit, after payment of receivership and other prior expenses, a distribution of about 40 per cent in cash on the bonds and notes, plus a substantial subsequent realization on accounts, inventory and other assets. The committee is definitely in favor of such a distribution and is actively working toward this end."

The committee reports an "encouraging response" from security holders favoring a cash distribution. Bond and note holders who have not yet deposited and who are in favor of a prompt cash distribution are urged by the committee to cooperate by depositing their holdings with the Manufacturers Trust Company as depository.

In addition to Mr. Eberstadt, Georges Benard and George N. Lindsay are members of the committee.

Orrin G. Wood, chairman of the Fisk Rubber Company reorganization committee, has announced that his committee, in cooperation with John N. Willys and W. B. Stratton, expected to make known its plans in a few weeks. The plans, it was said, contemplated a substantial cash distribution to bond and note holders.

Question of Increased Tire Prices Worries Industry With Firestone Balking

ACCORDING to authoritative opinion within the industry the larger tire companies which have announced an 11% to 15% increase on tires and tubes appear ready to stand on their decision despite the fact that the Firestone Tire & Rubber Co. and the mail order houses have not joined in the increase. According to a special Dow, Jones dispatch to the *Wall Street Journal,* Goodrich, Goodyear and General officials have stated they will not alter their previous announcement of a price increase to offset the federal excise tax at this time.

As a consequence, all interests in the rubber industry will be watching developments closely during the next month to see the effect of the divided price situation. Heretofore all companies have followed practically the same course in the matter of prices.

Many rubber interests are confident that the mail orders, and hence Firestone, will eventually follow the increase, particularly when the mail-orders' stocks of tax-free tires are worked off, but it seems probable that if a compromise cannot be reached on the situation within the next month or so, the entire industry will have to settle back on the lower basis even though they consider the prices ruinous at that basis. While the majority of the manufacturing and selling companies are on the side of the price increase, it is doubtful if they could overlook the competition of the mail orders and Firestone for an indefinite period.

A great deal of the present trouble seems to have originated in an entirely new practice in the industry, according to the Dow, Jones report. Around June 1 one of the larger companies inaugurated a system of fall dating of tires to dealers. While the industry for some time has made much of the spring dating business, this was the only season in which it was practiced. With the new procedure dealers were allowed to stock heavily on tires and were to pay over a period of four months, a quarter of the total amount falling due each month. Most of the companies accepted the new practice, although some on a more reduced scale than others, and this allowed for large stocking of dealers before the tax came into effect. Undoubtedly this practice had weight with the mail order houses in refusing to raise prices as early as June 21 or until they could determine the policy of dealers with quantities of tax free tires on their shelves.

Committee D-11, A. S. T. M., on Rubber Products Elects Harlan Depew, Chairman

AT its annual meeting held in Atlantic City on June 21, the American Society for Testing Materials, Committee D-11 on Rubber Products chose as its chairman for the next two-year period, Harlan A. Depew of the American Zinc Oxide Company. Mr. Depew, who is well known in

the rubber industry as a rubber technologist and prominent member of the Rubber Division, A. C. S., has been very active in the A. S. T. M. and has long served Committee D-11 as chairman of its subcommittee on abrasion testing. C. R. Boggs, vice-president of the Simplex Wire and Cable Company, was re-elected vice-chairman of the committee, and Arthur W. Carpenter of the B. F. Goodrich Company was re-elected as secretary. The committee will hold its next meeting at New York in March, 1933, in conjunction with the spring group meetings of the A. S. T. M. committees.

The Atlantic City meeting was quite well attended and definite progress was made. The new tentative specifications for friction tape and tentative performance specifications for rubber insulated wire and cable were accepted by the society upon the committee's recommendation. The present standard specifications for friction tape were withdrawn.

Revisions in the tentative specifications for rubber insulating tape were also accepted by the society. Tentative methods of chemical analysis of rubber products (D 279-31 T) were advanced to standard and the chemical analysis section of the standard methods of testing rubber products (D 15-24) was withdrawn which completes the separation of the physical and chemical methods in the standards.

The subcommittee on hose presented to the committee separate proposed methods for testing wrapped and braided hose. These methods will be circulated in the committee for detailed study and when they are adapted the present standard specifications of the society covering specific types of hose will be withdrawn.

Progress was reported in a number of other subcommittees. The interpretation of data secured in an extended investigation of accelerated life tests is under way and work is also in progress to develop standard methods for conducting aging tests. The subcommittee on rubber for absorbing vibration was given the opportunity of inspecting apparatus for tests of compression set (flow tests). This equipment has been developed by the Tinius Olsen Testing Machine Company at the request of the subcommittee. The subcommittee on insulating tape organized a section for further study and development of tests designed to predict more accurately the probable life of tape and also to study methods for testing "tackiness" as differing from the present adhesive strength tests.

Canadian Goodyear Pays Dividend and Presents Fair Report for Year

ACCOMPANYING current dividend cheques to common and preferred shareholders of the Goodyear Tire and Rubber Company of Canada, Ltd., was the following interesting letter, over the signature of C. H. Carlisle, president and general manager, outlining the present position of the company:

"General business conditions have not improved since the time of our last report and there is no immediate prospect of improvement. The prices of high grade stocks and bonds have decreased, government bonds being no exception. The value of currency in most countries is below par and our dollar is at a substantial discount. These conditions are not more warranted than the inflated conditions of 1928 and 1929.

"The present market prices of your company's preferred and common stocks reflect these conditions, but they are out of line with the company's financial worth and its general standing in the industry. Neither the officials nor the directors of the company have ever traded in its securities, nor have they attempted at any time to regulate the market value of these stocks. It has always been our policy to operate the company to the best of our ability and allow the market to take its own course.

"Since 1929 it has been very difficult for most companies to operate at a profit and many companies have been forced to suspend business. Your company since 1929 has earned and paid both its preferred and common stocks dividends and has built up substantial reserves and added to surplus. Since October, 1929, it has cancelled and retired 4,670 shares of its common stock and 6,890 shares of its preferred stock.

"You may be interested in a comparison of the present standing of your company with its position as of July 1, 1929, which is about the high point of inflation. The plant and equipment has been slightly increased. Reserves for depreciation have been increased from $3,800,000 to $4,900,000. Cash in bank and on hand and other assets in the nature of cash have been increased from $3,100,000 to $5,300,000. The ratio of current assets to current liabilities has been increased from 7.2 to 25 and the earned surplus from $6,800,000 to $7,100,000.

"The figures quoted above apply to the rubber company only. The cotton company from its inception has been operated at a profit and has consistently made additions to surplus.

"A decline in the prices of either crude materials or manufactured goods generally results in a severe loss to any company. Since July, 1929, there has been a very drastic decline in the market prices of both rubber and cotton. The prices of these commodities as of July, 1929, and July, 1932, are as follows:

	1929	1932
Spot middling cotton ..	18.45 cents	5.10 cents
Crude rubber	20¾ cents	2⅝ cents

"In the Canadian tire industry domestic prices have declined 23.5 per cent and total unit tire sales have decreased 60.6 per cent. The decline in unit tire sales is largely in export and in sales to car manufacturers. These reduced prices and the present low volume of business have cost your company many hundreds of thousands of dollars, yet the intrinsic value of the company's common stock is $4.57 per share in excess of its value in 1929 when it sold as high as $377.

"It is quite difficult to make a definite forecast of either the rubber business or general business until such time as there is a greater world stability, but with our assistance as a shareholder we will endeavor to make the best use of conditions as we find them."

Steam-Operated Controller

THE new steam-operated temperature and pressure controller manufactured by C. J. Tagliabue Manufacturing Company, Brooklyn, N. Y., utilizes, without waste, the pressure of the steam to operate a diaphragm valve. Variations in the pressure do not affect the accuracy of control as a differential pressure above and below the diaphragm governs the steam valve opening.

A feature of this controller is the compact control head which houses the control part as well as the thermostatic bellows and eliminates leakage, corrosion and possible injury from without.

The normal position of the steam valve is closed. Steam enters the valve above the seat and passes at once into the lower diaphragm chamber through an opening, pushing the diaphragm upward and opening the steam valve. There is also an opening in the valve stem which allows steam to enter the upper diaphragm chamber. If the steam in the upper diaphragm chamber is not allowed to escape, both chambers will have the same pressure and the valve spring will close the steam valve.

(Other news of the industry will be found on Pages 280-285)

The Spinning Department of the Yaroslavl Cord Mill

Russia's Growing Rubber Industry

WITH the assistance of American engineers and rubber factory experts and the cooperation of one of the leading American rubber companies, one of the largest rubber factories in the world is being built at Yaroslavl, in the Ivanov Industrial Region, in Soviet Russia, according to the June 1, 1932 issue of the *Economic Review of the Soviet Union*. It will be part of an asbestos-rubber combine, which will have an annual production valued at a billion rubles when working at capacity. The rubber tire factory in the combine will turn out 6,500,000 automobile tires annually, and will be the largest in Europe and the second in output in the world. Another factory will turn out 75 million pairs of rubbber soles and heels a year, valued at 60 million rubles. A cord mill will produce 15,000 tons of commodities, valued at 113 million rubles. Two rubber reclaiming plants will have a capacity of 19,000 tons annually.

Production Expected This Year

About 22,000 workers will be employed at the plant. The cost of construction is estimated at 270 million rubles ($115,000,000). Construction was begun in 1930, but difficulties in obtaining labor and materials delayed the work somewhat. Production is expected to begin this year.

Yaroslavl was chosen as the site of the combine after consideration of a number of other cities due to its location on the banks of the Volga at an important railroad junction, near great peat bogs which can be used as fuel. It is also favorably situated with regard to building materials, textiles, and chemicals and provides easy access to shipments of rubber. The latter is now almost entirely imported, but it is expected that the U. S. S. R. will soon produce large quantities of domestic rubber. Manufactured tires will be shipped along the Volga and by rail to the Nizhni Novgorod automobile factory, to the AMO plant in Moscow, the "Red Putilov" tractor factory in Leningrad and the Kharkov tractor works. The truck factory at Yaroslavl will also be supplied with heavy tires.

Most of the skilled workers required in operating the rubber factory are being trained in the factory school of the plant. Others are receiving training at the "Krasny Treugolnik" rubber products factory in Leningrad and at various technical schools in Moscow and Leningrad. Many skilled workers and foremen will be transferred from existing plants in these two cities.

Technical Assistance From America

Technical assistance in planning the technological phases of production at the rubber plant was furnished by the Seiberling Rubber Company of Akron, Ohio. With the opening of the plant, the Seiberling Rubber Company will send an engineer to assist and supervise the initial operations. A number of Soviet engineers received training at the Seiberling plant. Technical assistance in the building of the asbestos sections of the combine is being furnished by the Multibestos Co. of Walpole, Mass. The Soviet United Rubber Industry has also engaged a number of American rubber and asbestos specialists.

Foxboro Develops Switch

A SIMPLE, compact pneumatic switch has been designed by the Foxboro Company, Foxboro, Mass., for use with their standard temperature and pressure controllers. This switch makes possible the use of air-operated controllers on equipment that is controlled by turning on and off an electric current.

The switch is a standard single pole mercury type switch mounted in a small cast-iron housing with an outlet tapped for either conduit or BX connector. In conjunction with suitable auxiliary magnetic switches, it may be used in any circuit where the current is not higher than 600 amperes at 220 volts.

The switch is operated by a small diaphragm motor mounted directly on the housing. The standard switch is closed by air pressure from the control instrument and opened by a spring. The switch is always open, therefore, when the air is off.

Latest Developments in the Manufacture of MOLDED BRAKE LININGS

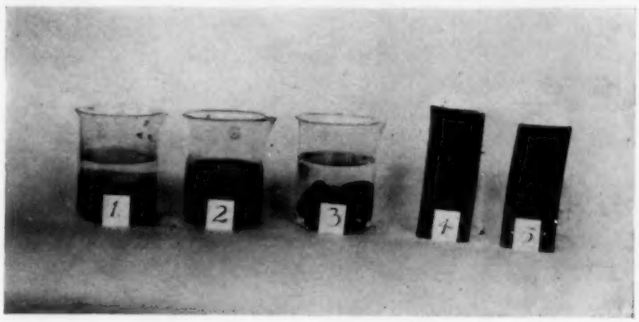
By B. W. WETHERBEE
Russell Manufacturing Company Laboratories

THE manufacture of brake lining employing rubber as its principal bonding agent, has experienced in the past, a series of ups and downs due almost entirely to propaganda, advertising, and popular appeal. The demands made by automotive brakes upon the linings were so relatively light in the days up to 1925, that material was actually sold on its appearance; general satisfactory performance was, of course, expected, but when it is remembered that car manufacturers had not yet begun to build fast cars as we know them today, and the heavy cars had braking systems with plenty of safety margin, one readily realizes that brake lining was just being coddled, compared with what is expected of it today. The present automotive vehicles have been economically slashed at all possible points; many popular makes, are using lining only 1½" in width on cars which attain easily a speed of 65 m. p. h.

Relations between the automotive and brake lining manufacturers have developed to a point where the car, or brake, manufacturer describes what he wants, and realizes that the experience and resourcefulness of the lining manufacturer will make sure he gets his demand, and better.

There is no question that the old style asbestos webbings, coated with the cheapest possible mixture of rubber, clay, and coloring agents prejudiced the buying public definitely against rubber lining. All the qualities which should be present, were lacking: a long period of "run in" was essential, the action wet and dry, hot and cold, was widely variable, and the life was short.

Conventional Type Hollander, Used in Wetting Out and Mixing Operations



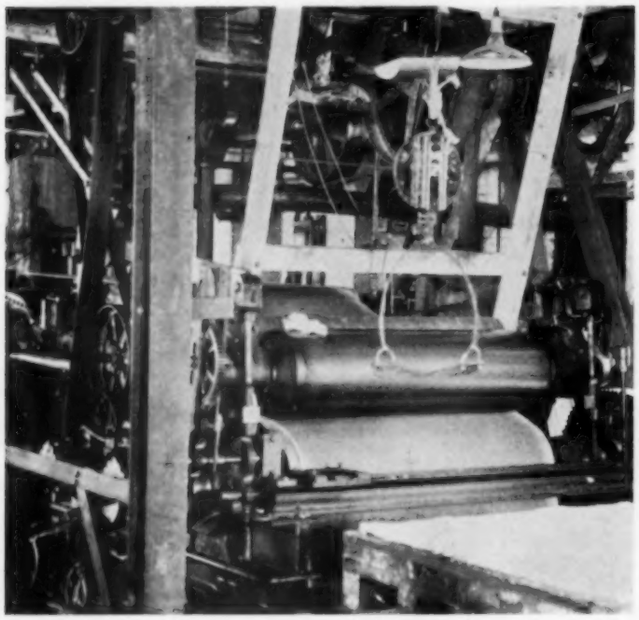
A Condensed Outline of the Major Steps in the Manufacture of Molded Brake Lining as Described in This Article

(1) Asbestos, thoroughly agitated and wet out in water.
(2) Same material agitated with the dispersed rubber and compounding materials.
(3) The rubber and compounding agents completely deposited on the asbestos.
(4) The dried stock, sheeted and ready for vulcanizing under high compression.
(5) Molded, rubber-bonded brake lining after finishing steps, ready for installation.

In fine, modern development in the automotive fields demanded parallel improvements in brake lining. Specialization crept in, logically demanding that different requirements should be met by satisfactory modifications of the linings. For some time, the introduction of the Durak-molded type (high percentages of asbestos, bonded by synethetic resins) of brake lining answered the demand for long life and uniformity. This type of material is still in wide use and there is no doubt that it will always continue to be; yet as has been stated above, requirements of the present day are so varying, that satisfactory solution of all braking problems by this type of lining is impossible. The modifications possible are numerous, but still not enough to meet a definite proportion of the demands for specific properties.

The brake lining manufacturer has discovered as a result of many years' experimentation that, essentially, high percentages of asbestos, bonded with a low amount of rubber properly compounded, offers an excellent foundation upon which to build a complex structure of widely varying compounds which are capable of the requisite modifications. The next problem is to develop a manu-

facturing process which shall in all ways aid in making the finished product as good as may be expected from the quality and quantity of the basic materials. Since it is generally agreed that the former conventional way of handling rubber (i. e. smoking, masticating, and frictioning) is not conducive to production of the best possible rubber, it is a rational step to eliminate these deleterious



Equipment Used in the Sheeting Out of Pulped Stock

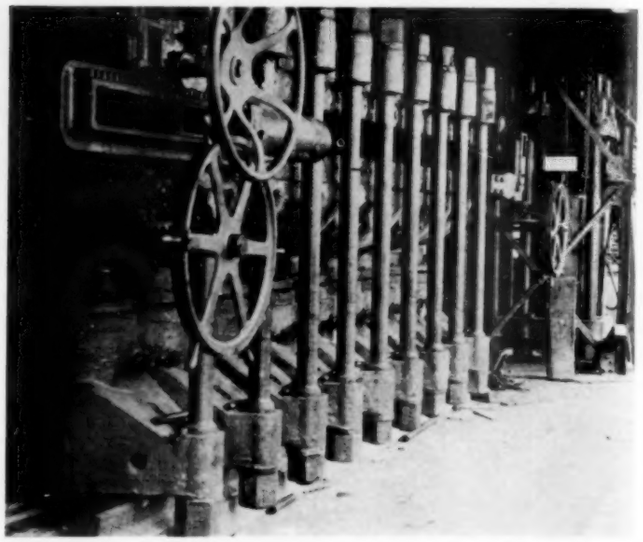
operations and go back to the natural latex, exuded from the rubber tree. The rubber tree "sap" furnishes a source of rubber which is as virgin as possible. None of the valuable proteins have been washed out, the rubber hydrocarbon particle itself has lost none of its "nerve"; in substance, it is the acme of rubber quality. It is extremely fortunate that certain developments in latex experimentation have rendered possible the production of a rubber latex which still retains its physical and chemical properties, and yet is a truly vulcanized dispersion.

The advantages of working in an aqueous medium are manifold, and require some elaboration. Undoubtedly, the fact that materials may be diluted to any extent merely by the addition of water at practically no expense, constitutes profound economy in mixing, together with elimination of all costly and dangerous solvents which must of necessity be used in most conventional processes. The mastication of rubber with asbestos in the absence of plasticizers predicates a long mixing period, every minute of which renders the asbestos fibre shorter and more brittle and the rubber more "nerveless." Although the employment of plasticizers naturally decreases to a large extent the mixing time, and aids in the thorough wetting-out of the asbestos fibres, by the rubber, the unavoidable inclusion of unctuous materials, (which are undesirable in a brake lining,) immediately presents a perplexing problem to the manufacturer. In working with aqueous dispersions, all ingredients necessary for effecting the final vulcanizate, and those compounds necessary for lasting preservation of its initial characteristics, together with the agents which confer specific properties, may be mixed as long as necessary under high speed agitation, to secure absolute homogeneity. This mix may then in turn be agitated more slowly with the asbestos so that the fibre length is preserved, and up to the point where each individual fibre has received its uniform coat.

From this point on to molding, conventional methods of pressing out the excess water, drying the pulp, sheets, or strips, each form depending on the subsequent use, are employed since the purely mechanical methods of handling have no effect on the intrinsic properties of the finished material.

The cure of brake lining is a process which is again widely varied to suit the as-widely varying needs; some products are made whose cure is a matter of minutes, others require a cure of hours in order to perform satisfactorily under the most exacting conditions imaginable. The flexibility of such a manufacturing process as herein described permits of the maximum curing efficiency because of the natural accelerators occurring in the rubber latex, and to a greater extent, from the absolute uniformity which such a product possesses.

The objections to the process are so few, and the advantages and promising future so unlimited that production and exhaustive experimentation are being carried out with enthusiasm. From the data at hand, there is no question but that the special forms of latex suitably processed as described above, offer the most satisfactory approach to brake lining problem which are daily becoming more difficult.



Hydraulic Ram—Steam Heated Press with Total Available Pressure of 2,000,000 Pounds, Used in the Manufacture of Molded Brake Linings

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Combined Vapor-Pressure and Temperature Control Cabinets

A NEW type of cabinet has been devised by the Freas Thermo-Electric Company, 1206 South Grove Street, Irvington, N. J., to provide facilities for control and constant maintenance of vapor pressures, humidity, and temperatures, at any values required within a wide operating range, permitting processing and observations of effects to be made under controlled atmospheric conditions.

They are applicable for experimental and routine work wherein it is desired to maintain a controlled condition of heat and humidity; in drying, baking, and evaporating operations to control the rate of evaporation or as an accelerated aging cabinet for testing the life of various materials.

The cabinets are complete self-contained units, fully equipped with regulators, heaters, and other devices to effect control of both dry and wet bulb temperatures, and vapor-pressure conditions.

ZINC OXIDES

Part III — The Practical Significance of Variations in the Properties of Zinc Oxides on the Performance of Rubber Compounds in Processing and in Actual Use

By B. R. SILVER
New Jersey Zinc Company

IN the two preceding parts of this discussion attention has been called to a number of possible variations in particle size, particle shape, chemical purity, the nature of the surface and the general effect of variations in these factors on the physical properties of rubber compounds as determined in the laboratory. We shall now consider the effect of these variations on factory processing and on the performance of the finished product. Obviously, what we shall have to say in this connection is the joint result of cooperative work with the rubber manufacturer for a number of years.

The mill incorporation of zinc oxide in rubber we believe presents no special difficulty. This was not altogether true some years ago, as many of you will recall the occasional tendency of zinc oxide to stick to the back roll. The Banbury mixing of zinc oxide, however, both in the master batch and in direct mixing may present some difficulties, as might well be expected due to the comparatively recent adoption of this method of mixing. It will be readily appreciated that the complete dispersion of a fine particle size zinc oxide will require considerably more time and more attention to procedure than a coarse form of zinc oxide, as for example the extreme types shown in the photomicrographs. It is common experience that the coarse forms of oxide give little mixing difficulty. However, it is possible to mix all types of zinc oxide successfully in the Banbury in a reasonable time when proper attention is given to batch size and procedure.

Surface Treatment of Zinc Oxide

Some recent developments have shown that the difficulties of Banbury mixing may be considerably reduced by slightly altering the character of the surface of the oxide. Surface treatment results in obtaining more uniformly good dispersions on a production scale without increasing the time of milling. The effect of surface treating is more evident in the case of the finer divided oxides as the coarse types offer practically no difficulty. These results are accomplished without any noticeable alteration in the general properties of the oxide in rubber.

The question of the relative advantages and the proper application of "fast" and "slow" curing zinc oxides has received special consideration, particularly during the past year. Both types of zinc oxide have special properties unique unto themselves. The decision as to the proper type to use should logically be determined by considering the special properties of the two types in the light of processing problems and the requirements of the finished product.

EDITOR'S NOTE: This paper was delivered in three parts by Messrs. G. F. A. Stutz, G. S. Haslam and B. R. Silver, of the New Jersey Zinc Company, at the March 7, 1932, meeting of the Akron Group, Rubber Division, A. C. S. Part I on Properties was published in the June 10, 1932, issue and Part II on Effect of Variations was published in the June 25, 1932, issue.

First, let it be said that in cases where zinc oxide is used for activation only, our observations show that the differences between the two types, in general, involve academic rather than practical questions. Notable exceptions are, for example, low temperature cures (100° C.), and in carbon black stocks where the "slow" curing type appears to offer certain advantages.

In the preceding section of this discussion, we have seen the retarding effect of a zinc oxide of the "slow" curing type on a compound accelerated with 808. This is generally true of accelerators of the "basic" type. The effect, however, is minimized, for example, in a commercial inner tube compound containing approximately 30 per cent of zinc oxide on the rubber in the presence of an antioxidant and the customary softening agents. In other words, the differences which may be brought out in test compounds in many cases practically disappear in commercial stocks.

Sulphur Compounds Give Rise to "Slow" Zinc Oxides

The effect of the presence of lead oxide and cadmium salts in commercial zinc oxide on the curing rate with certain accelerators is well recognized and has received special attention in the literature. When these materials are absent, or present only in negligible amounts, the principal retarding materials which give rise to the "slow" curing zinc oxides are sulphur compounds, which are present in the form of mixed basic lead and zinc sulphates.

Some types of zinc oxide act as positive accelerating agents per se, when present in substantial quantities. This suggests the possibility of the use of fine particle size zinc oxides as a means of lowering the accelerator content and thereby reducing compounding costs. It appears to be possible under certain conditions to accomplish this result insofar as "acceleration" is concerned, but it is well to note the aging characteristics of the compound to determine whether the results are obtained at the expense of other very desirable properties.

Let us now summarize briefly the properties of the "fast" and "slow" curing oxide. As has been previously pointed out, in activation amounts the differences are practically negligible except in the case of very low temperature cures. In high volumes, the "fast" curing oxides have a comparatively short curing range, in other words they tend to reach optimum tensile in advance of the "slow" curing types, and correspondingly deteriorate in tensile earlier. The "slow" curing type oxides possess "anti-scorch" properties, which are of importance with particularly sensitive accelerators. When comparisons are made with oxides of the same particle size the "slow" curing types tend to give a stiffer stress-strain curve; the modulus at lower elongations is higher.

From the standpoint of reinforcement, it is hardly necessary to

point out that the finer the particle size the greater the reinforcing action. Fine particle size oxides may be compounded in higher volumes with less lowering of resilient energy than coarse particle size oxides. The fine oxides give not only higher tensile strength but also higher tear and abrasion resistance.

The question of the proper type of zinc oxide for the production of white rubber goods frequently arises. The lead content of the oxide must necessarily be low or else it must be present in such a stable form that it does not react during vulcanization to form dark lead sulphide. Zinc oxides containing sulphur tend to give a cream white, which bleaches out on exposure to sunlight. The finer particle size oxides are considerably below the particle size for optimum whitening power. Compounds containing these fine sulphur free oxides give a blue white which shows less tendency to yellow on overcures.

We have endeavored to give as concise a picture as possible of the principal factors affecting zinc oxide as a rubber compounding material, in the light of our present knowledge. Information is being accumulated almost daily and with the close cooperation of the rubber industry—and it is only with this cooperation—that we may hope to continue to develop pigments particularly adapted to the industry's needs.

Can You Answer These?

THE following examination in general rubber technology was held on June 6, by the Institution of the Rubber Industry, London, for qualification to Fellowships of the Institution:

Examination

(Five questions to be answered)
Time allotted, 2½ hours

Ques. 1. What special properties would you set out to get in compounds for:
(a) Lining for sand blast hose.
(b) Covers for heavy duty conveyor belting.
(c) Shoe soling composition.
(d) Rubber tiling.
In each case say what steps you would take to develop these special properties.

Ques. 2. Give an example of an industrial risk peculiar to the rubber industry:
(a) Arising from the use of machines.
(b) Arising from the use of materials.
In each case point out how the risk arises and what practical steps can be taken to minimize it.

Ques. 3. Give a theoretical outline of the process of mastication. Discuss methods of mastication dealing with plant, power and properties of the treated material, and describe one plasticity test.

Ques. 4. Describe a rubber calender and explain its operation in the preparation of rubber sheet and in the coating and frictioning of fabrics.

Ques. 5. State quantitatively the ingredients of a medium grade mechanical mixing which you would consider to yield a good-ageing product on vulcanization. Give also the time and temperature of cure you would give the compound.

Ques. 6. Describe briefly how you would determine:
(a) The tensile strength, elongation, and weight per square yard of the cotton fabrics commonly used in rubber works.
(b) The structure of tire cord.

Ques. 7. Certain accelerated stocks have a tendency to "scorch" during mixing, calendering or forcing. How would you estimate this tendency, and what measures would you apply to prevent the occurrence of premature vulcanization?

Ques. 8. Give a brief account of a process for the use of latex in the manufacture of sponge rubber.

Measurement of the pH of Rubber Latex by the Antimony Electrode

THE antimony electrode is being investigated at the Bureau of Standards, Washington, D. C., as a means of determining the pH of the ordinary ammonia-preserved rubber latex, according to the June, 1932, issue of the *Technical News Bulletin* of the Bureau. Measurements that have been made on latex samples ranging from pH 8 to pH 11 indicate that this electrode gives constant and reproducible readings and is free from disadvantages inherent in other types of electrodes when used in latex. The hydrogen electrode can not be employed in latex on account of the deposition of rubber on the platinum black surface. The quinhydrone electrode gives erroneous results when the latex is in the strongly alkaline range above, say, pH 8.5. The glass electrode, on the other hand, has given good results with latex, but has the practical disadvantage that either an electrometer or a vacuum tube galvanometer is required to measure the electromotive forces through the high resistances that are involved. The antimony electrode, however, can be used with ordinary electrometric apparatus which is relatively simple in operation.

The antimony electrode is used in the form of a cast stick of the chemically pure metal, and is calibrated in appropriate buffer solutions against the hydrogen electrode.

This work is being done in connection with the development of a general procedure for making laboratory test specimens directly from rubber latex by electrodeposition.

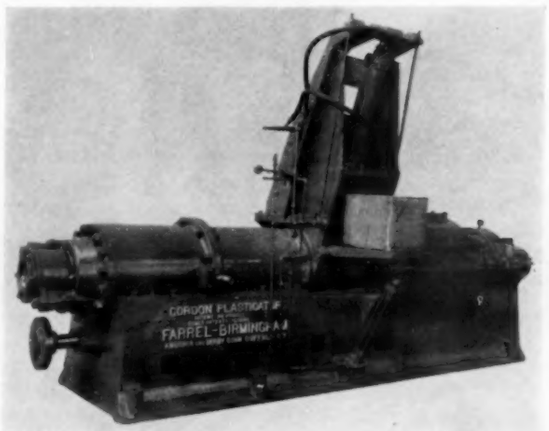
New Farrel Plasticator

THE Farrel-Birmingham Company, Inc., Ansonia, Conn., has recently introduced a new 20-in. straight-line, two-stage plasticator machine. The new type is shown in the accompanying illustration. The manufacturers claim that the design is the result of five years of steady development.

One of the outstanding features of the new type machine is its ability to receive a whole bale of rubber at one time, thus saving considerable handling and labor.

The output of the new plasticator is expected to be ten or twelve per cent above the older types and the degree of plasticity will be better and more uniform.

The mechanism has been reduced to the simplest form which will accomplish the desired purpose, reducing not



only the chances of something going wrong but rendering maintenance repairing, should such be necessary, easier and quicker to make. The daily servicing of the big machine has also been reduced to a minimum.

The design is equally adapted for slow speed or high speed motor drive. The jack shaft turns at about 100 R. P. M. and is carried on a special all-steel base with a collar-oiling pillow block on each side. It carries a slow speed flexible coupling for connection to a reduction unit or to a slow speed motor. In operation 600 H. P. is required at 600 to 720 R. P. M., or 100 to 120 R. P. M.

The overall floor space is 23 feet, 1¾ inches long from tip of nose to center of slow speed coupling, and 10 feet, 6 inches wide over jack shaft bedplate and loading shelf. The weight of the machine proper is 65,000 lbs., the jack shaft assembly 8,500 lbs., and the 600 H. P. reduction unit 25,000 lbs., or a total weight of 98,500 lbs.

The CONANT PROCESS *of Vulcanizing Rubber to Leather*

VULCANIZATION of rubber composition to leather, which has been studied and experimented with for many years, almost in fact, since the beginning of the rubber industry, has now finally, become successfully accomplished by the process described in the Conant patents which are numbered in the United States, 1,719,101, 1,769,-943, and 1,787,145.

Previously, as the result of the numerous attempts made to unite rubber composition to leather during hot vulcanization, some had thought that by drying the leather thoroughly, it would thereupon become adapted for the purpose. Others, having dried the leather, proposed to remove the greases as well. One, having rid the leather of all moisture, immediately enclosed it in an envelope of rubber to keep it dry prior to and during vulcanization. Another, aware of the hydrostatic moisture content of unvulcanized rubber composition under normal atmospheric conditions, employed a stepped application of pressure during hot vulcanization in the attempt to overcome its oxidizing effect upon the leather. Others have proposed to cement the contacting surfaces of the rubber composition and leather to promote the union of the materials during vulcanization, both cold and hot, but if hot, always at a low temperature, i. e., 120° C. or less, and withal, then introducing the cemented combination to hot vulcanization without suitable heat preparation of the leather. All of the above methods and others, many of which have been made the subject of patents in the past, have proven themselves unworkable because they left the leather after vulcanization with heat and pressure injured to a degree varying from brittleness to reduction into oxidized crystals that allow a finger touch to dissipate their substance.

Possibilities in New Process

Accordingly, written into the record of the past is the fact that, after decades of experimentation and the employment, for a limited time only, of this method and that, here and there, in some of the rubber manufactories, notably, in the restricted production years ago of leather-treaded horse-shoe pads, leather-tipped rubber composition soles and leather-treaded pneumatic tires, no article of manufacture comprising rubber composition hot-vulcanized under pressure to leather has been produced or offered in commerce by the rubber industry for more than two decades until very recently. Now, as the result of the initial introduction and use of the new Conant process, rubber composition soles inseparably united to leather backers during ordinary hot vulcanization, have become of general interest in the shoe manufacturing industry for use in the production of the better grades of rubber soled leather footwear.

While it may be reasonably assumed that the Conant process will prove to be an achievement of considerable value to the rubber and leather industries, it should be understood that, while some rubber manufacturers and others spent time and money in the past in the endeavor to adapt leather to the process of hot vulcanization with pressure, the industry as a whole regarded the proposition as impracticable. This situation is readily understood in view of the belief that heat destroyed leathers. The common acceptance of this fallacy denied opportunity for experimentation generally. Furthermore, the development of the rubber industry, as a whole, until recently, taxed to the utmost the production capacity of constantly enlarged facilities with the result that the problems associated with the manufacture of a great variety of rubber products, in themselves, demanded the entire time and devotion of the majority engaged in the industry. Only here and there could there be found any who considered the various experiments dealing with the combination of leather and rubber composition during hot vulcanization as having any constructive value whatsoever. In this connection, it is timely to say that, in the opinion of the inventor of this process, only, this era of enlightened rubber chemistry, advanced machines and appliances, and, extraordinary developments in contributing arts made it possible to bring the process of vulcanizing rubber composition to leather with heat and pressure to a successful conclusion.

Preheating of Leather

The process described in the Conant patents recites the discovery that the one way in which rubber composition may be vulcanized with heat and pressure to leather, without injury to the latter, is by preheating the leather to approximate the temperature subsequently to be experienced during hot vulcanization, and then, carefully maintaining this elevated temperature, assemble the heated leather with the rubber composition and introduce both to the heat of vulcanization. In this manner, the preheating or heat-energization of leather, prior to its introduction to the heat of vulcanization, adapts the leather to accommodate itself readily to the heat of its union with rubber composition during ordinary vulcanization with heat and pressure. The truth underlying this discovery proves that, provided the application of heat and pressure are divided into two distinct operations having no interim, the leather becomes in no way impaired by the process of hot vulcanization.

While this preheating or heat-energization of leather in advance of its combination with rubber composition during ordinary hot vulcanization, is fundamentally requisite, an additional provision is of the greatest importance to assure a positive and durable union between the contacting surfaces of the materials. The leather must be provided with a coating of cement which has been suitably compounded to coordinate its cure with that of the rubber com-

*Reprinted with acknowledgment from *Hide and Leather*, May 14, 1932.

position with which its complete fusion at the inception of the process of hot vulcanization is imperative. Provided the cement is properly balanced, then the liquid is capable of penetrating beneath the surface of the leather and impregnating its pores and interstices to an appreciable depth, particularly, if the leather has been prepared with a split-fibre surface to receive it. In other woods, the process has two equally important objectives, first, to cure the rubber composition to the leather without injuring it, and, second, to unite the materials inseparably.

The disclosure of process comprising the Conant patents provides, both, that the leather shall be made to acquire an elevated temperature substantially the equivalent of the degree of heat employed in its subsequent combination with the rubber composition during hot vulcanization, and, that the leather become coated with a veneer of cement to receive the contacting surface of the rubber composition, whereby, upon assembly of the hot, cemented leather and rubber together for the vulcanization, the cement interposed between them shall have previously impregnated the fibrous structure of the leather and engage the opposing surface of the unvulcanized rubber composition with which it is adapted to fuse and blend during hot vulcanization. It is imperative that the body-heat elevation of the cemented leather from a normal temperature to approximate an ordinary vulcanizing heat, i. e., an increase say from 80° F. to 300° F., be accomplished in an open heater. It ruins leather to introduce it within an oven, vacuum dryer or the like when so heated, since the effect is that of stewing the leather in its own vapors and therefore causing brittleness or worse. It is understood that the normal hydrostatic content of water in leather approximate a mean of substantially eight per cent of its weight. For this reason, the cemented leather should be placed in a heater having the general appearance of the ordinary vulcanizing press, and, therefore, comprised of a multiple of heated platens mounted upon a metal rack and spaced in the usual manner, and piped to connect with the steam circulation fed to the vulcanizing presses to which, of course, it should be immediately adjacent. Sheet iron trays, one for each platen, are provided for the preheating operation, whereby several layers of leather may be heat-energized simultaneously upon each tray.

Factors to Be Considered

Having introduced the cemented leather to the preheater until its body-heat becomes elevated as required, the leather is now thoroughly hot and dry, and, as a consequence, its fibres assume a less cohesive relationship. This change if properly effected does not impair the quality of the leather permanently, i. e., the leather at a body-temperature say of 300° F. should be just as flexible as originally, although, obviously, in being absolutely dry, the tensile strength of its fibres is appreciably less, but only temporarily. No fixed period can be given to govern and determine the duration of the preheating, because the quality of the leather, grain or split, its tannage, and the nature of the rubber composition with respect to its cure, are all important factors to be considered. Having brought the cemented leather to that elevated body-temperature which approximates the heat of its combination later with the rubber composition, and, of equal importance, having handled the leather meanwhile as from the preheater to the molds or vulcanizing press or both in a manner that insures to the leather maintenance of substantially all of its body-temperature, upon completion of its preheating as described, the leather possesses during the interval immediately preceding the hot vulcanization a degree of body-heat which radiates sufficient heat-energy to overcome any possibility of atmospheric moisture invading its pores as well as adequate heat-energy to accept without further physical change complete accommodation to the process of hot vulcanization, the rubber composition and the hot, cemented leather are brought together for the vulcanization.

The elevated temperature acquired by and still retained by the leather protects and preserves it during hot vulcanization, since, in effect, the leather is experimenting no appreciable change in temperature, and, as a result, has only to adjust itself to the pressure while being cushioned by the hot rubber composition. The hot vapors laden with the hydrostatic moisture from the rubber composition, which are emitted therefrom instantly upon the application of heat and pressure thereto, find ready exit through the pores and interstices of the superheated leather. It being certain, that the fibrous leather structure must have been made to become during its heat-energization fully adapted to receive and expel a large portion of the vapors issued by the hot, plastic rubber composition at this time, because, were the body-heat of the leather allowed to be substantially less than that of the heat imposed at the inception of the process of hot vulcanization, then, the leather, even though it were anhydrous, could not accept and pass without injurious effect the initial vapors resulting from the process, especially, if under pressure. The reason that ruinous oxidation would occur, otherwise, is that upon a sudden increase in its body-temperature a reciprocally related expansion of its own air content is enforced, and, anhydrous or not, the leather cannot discharge such expansion with enough rapidity to clear the way ahead for the reception and emission of the vapors originally emitted by the rubber composition at the instance of the hot vulcanization. As an example of this fact, if leather, say of three-irons thickness, is heated to become thoroughly dry at 200° F. and then, without further heat elevation, is now introduced to ordinary vulvanization at say 260° F., it will be found that approximately one-half of its thickness, that nearest to the rubber composition, will have become reduced to oxidized crystals, whereas, the half, whose upper surface is visible, will appear unaffected, although an examination will disclose its brittleness. Consequently, it is certain that the rubber vapors were pocketed for the period of destruction of the lower area by the expansion of the air confined in the upper strata of the leather.

Therefore, the heat-energization of the cemented leather to adaptation for the heat of its union with rubber composition during ordinary hot vulcanization exacts and requires that the leather become preheated or heat-energized at an elevated temperature equal substantially to the heat of vulcanization of the rubber composition thereto, and in particular, that its adaptation exists and obtains, only when and while so heated.

Any Leather Can Be Used

Immediately following the vulcanization, the leather, although united to rubber composition, begins to recover a normal content of moisture from the surrounding atmosphere, with the result, that within a compartively few hours, its fibres have become restored, naturally, to their original condition. During this period, the rubber and leather combination must not be immersed in or otherwise treated with water, because any enforced treatment of the kind will injure the quality of the leather.

The process permits the employment of any leather, including the several tannages designated broadly as shoe upper, sole leather, belting, etc.

Products which the process is capable of producing include sole leather for street and sport shoes, leather for moccasins and work shoes, belting leather for leather faced rubber belts, leather liners for pneumatic tires, harness, luggage and clothing leather, heels, toplifts and rubber-faced welting.

EDITORIAL COMMENT

The Coming Campaign

THE ballyhooing and general uncertainty of the nominating conventions of the two major political parties has ended. The tickets have been named. There is nothing in the platform of either party to bring anxiety to the rubber industry. The imposition of the excise tax on tires and tubes and rubber sporting goods is already with us to stay for some time, or at least will not be changed in the immediate future. The industry can find no cause for alarm in the election of either ticket.

On the other hand, the question may be aptly put as to whether either ticket may bring any solace to distressed industry. As regards the rubber industry specifically, the answer must be in the negative. But in the general proposed programs of both parties to bring about some economic relief the industry can find food for thought as to how it can help itself. A readjustment in the principles of merchandising and production is advocated, in principle, by both of the great parties, as a salient factor in the return to industrial prosperity. Two problems rest with the rubber industry which must be settled before any return to a profitable basis can be expected. These problems must be solved within the ranks of the industry itself. They are the questions of price cutting without regard to profitable competition and the protection of the independent tire dealer as against the mail order houses and chain stores.

Until the industry has settled these two questions it need not expect relief nor will any victory in November for either party help the rubber trade.

Good Roads vs. Tire Wear

A STRANGE but interesting truth has come to light through the research work of the United States Rubber Company. The theory that the modern good road is "kind to tires" has proved to be a fallacy, according to the statement recently made by J. F. O'Shaughnessy, vice-president in charge of sales of the United States Rubber Company.

"One might suggest," says Mr. O'Shaughnessy, "that as roads are being improved every day it is only natural that a tire will give more mileage over good roads. As a matter of fact, improved roads tend to increase tread wear, because they permit higher speed, and speed is the worst enemy of a tire. Tests made in various sections of the country show that any increase in speed causes a definite increase in tread wear. As an example, assuming that a speed of thirty miles an hour will enable the tire to deliver one hundred per cent mileage, an increase to fifty miles an hour will reduce the amount of mileage to seventy-five per cent. At sixty-five miles an hour, the mileage will drop to sixty-three per cent. And at seventy-miles an hour, the mileage will sink to fifty-five per cent. These figures are based on constant normal temperature of seventy degrees.

"So, it is evident that good roads and their accompanying speed are not likely to lengthen the life of a tire. It is not the concrete road of today, but the old dirt road of yesteryear that was easiest on tire tread."

Virtue in Lower Prices

IT IS odd to hear of a Mincing Lane house actually advocating a further reduction in rubber prices, but such seems to be the stand of one of the leading British rubber authorities. Their argument is best set forth by direct quotation from their latest trade circular.

"The position of affairs so far is summed up in the statistics compiled by the Rubber Growers' Association relating to the monthly crop returns of rather more than 600 British companies operating in the various producing districts of the East. These show that in April, 20,682 tons were produced by the companies included in this examination. A month previously, 20,148 tons were secured by the same group, while for the first four months of the current year the total comes to 85,106 tons compared with 83,997 tons in the corresponding period of 1931. These plantations, which include most of the leading companies in the industry, have, it will be seen, actually increased their outputs. Obviously it is futile to expect any relief from prevailing conditions so long as the principal companies persist in their old tapping policies; and unfortunately it would seem that the only thing that will alter matters is a sufficiently low price for the commodity. To this extent, the ultimate outlook will actually be improved by a further fall in Mincing Lane, and probably the best thing that could happen would be a further slump to about 1d. per pound. Few companies could then say, as they do today, that it still paid them better to tap than to close down; and wholesale restriction would undoubtedly result from the establishment of such a low price level. It is on these grounds that the latest exhibition of weakness in the commodity market may be regarded as a not unwelcome development."

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Representatives in all the rubber centers of the United States, Canada, England, France, Germany and the Middle East.

The Rubber Industry's CURRENT NEWS

Financial—Personals—New Rubber Products—
Building Operations—Manufacturing—Exports

FIRESTONE WILL ERECT BUILDING AT WORLD'S FAIR

The Firestone Tire and Rubber Company will erect a special building at Chicago's 1933 World's Fair, according to a recent announcement by Harvey S. Firestone, Sr.

On a visit to the exposition grounds on Chicago's lake front on June 18, Mr. Firestone visited the site of the company's building, in company with president Rufus C. Dawes and other officials of the Fair. The Firestone building will be located at Twenty-third street near the main entrance to the exposition grounds. It will contain an extensive exhibit showing the production of rubber, rubber tires and other products from the raw materials.

"I am immensely enthusiastic about the plans for the exposition and for the Firestone building," said Mr. Firestone. "The theme of the Fair as explained to me—namely, the progress made in the last hundred years by applying scientific principles to industry under our system of private enterprise—is one which needs to be emphasized today.

"I see in the Fair a great opportunity for private enterprise to show its achievements to millions of people. I see in it also a great opportunity for industrial enterprises to publicize their goods and services.

"The Exposition grounds are most beautiful, conveniently located and ideal as a setting for a World's Fair. The rapidity with which the buildings have gone up and exhibit space sold to industrial companies and state governments is amazing and an auspicious portent for business conditions in 1933."

Newark Tire Increases Force

Increased production at the factory of the Newark Tire and Rubber Company, Newark, O., has brought about an increase in the number of employes from 400 to 900 within the last three months, it was announced recently by company officials. The company has reported a steady increase in the demand for its tires since January last.

Dayton Sales Increase

June shipments of the Dayton Rubber Manufacturing Company were the largest of any month in the twenty-seven years of the company's existence. The record operations were attributed to abnormally heavy buying in anticipation of the Federal excise tax, which became operative June 21, and also to a seasonal pickup.

A. C. S. Denver Meeting

The annual fall meeting of American Chemical Society will be held in Denver, Colo., August 22 to 25. Meetings of the Rubber Division are planned for Wednesday and Thursday, August 24 and 25, but details of the program are not yet available. The Rubber Division dinner will be held Thursday night, in the Shirley Savoy Hotel, which will be headquarters for the division.

It is urged that as many members of the Rubber Division as possible attend the meeting and that in view of the distance of Denver from the large rubber manufacturing centers the members plan their vacations to coincide with the meeting date, thus combining a very pleasurable outing in the Rocky Mountain region with the equally pleasurable opportunity to renew personal and professional associations at the Denver sessions of the Rubber Division.

Denver is prepared to give the members of the Society an entertaining and interesting time during their stay in this city, with excursions planned to Pike's Peak and other places of scenic beauty in the vicinity.

General Passes Dividend

At the meeting of the board of directors of the General Tire and Rubber Company, held on June 21, the preferred dividends due on June 30 on the capital stock were passed for the first time since the organization of the company in 1915.

President William O'Neil, in a formal statement following the board's decision, said that the company had made an operating profit during the first six months of its fiscal year.

"The directors' decision," he said, "was based on the belief that it is wise to conserve the company's cash at this time."

No semi-annual statement has been issued.

Airship Display Advertising

Goodyear Tire and Rubber Company is offering a unique outdoor advertising medium through "airship displays" on the five Goodyear airships which are available in five separate market centers. The plan offered calls for day or night advertising, with eight-foot letters on banners by day and six-foot neon letters by night. The form of advertising is intended to cover publicity for local celebrations, fairs, conventions, races, sport events and selling drives. The airship advertising will be made available on terms by the hour, day, week or in periodic cycles.

STREAMLINE TIRES ON ARMY PURSUIT PLANES

Tests are to be made to determine the relative speed and efficiency of airplanes with the metal fairings on the wheels and with the Streamline tires of the General Tire and Rubber Company, without "pants" on the wheels.

Mounted on a special wheel, especially designed for the use of this tire, the streamline tire on the new airplane represents the latest development in modern aeronautical tire equipment. Minimum weight together with maximum strength have been obtained by stamping the wheels out of sheet metal, the new type providing additional side strength over former streamline tire wheels. The weight of the streamline tire and wheel is less than that of any high pressure or intermediate types of airplane tires and wheels of equal capacity.

This tire differs from other large air-volume, low air-pressure tires in that it has a cross-section that is triangular in shape when uninflated and parabolic in shape when inflated.

Because of their distinctive pyramidal construction, with unusually broad base, the streamline tires adhere firmly to the rim-seat, making it impossible for the tire to slip around on the rim when brakes are applied heavily. The triangular shape of the cross-section reduces the danger of ground looping.

New ideas in airplane brakes also are included in this tire and wheel. The removable brake drum is independent of the rim and prevents deflections under high impact. The wheel is provided with the latest type of standard taper axle and Timken bearings.

A minimum of castings has been used, the castings being of heat-treated magnesium alloy. The new design of the tire and wheel provide a continuously curved surface, with smooth side-walls, to the air. The surface of both tires and wheels are absolutely free from projecting rivets and bolts. The wheel has been developed by Army Air Corps and General Tire aeronautical engineers.

Must Qualify Name 'Goodyear'

The Federal Trade Commission has ordered George S. Sittenfield, raincoat dealer of Kansas City, to stop using the term "all rubber" or the name "Goodyear" unless used in connection with equally conspicuous words "not connected with Goodyear Tire & Rubber Co." or some other similar term sufficient to distinguish his company from the Goodyear organization.

TEW AND SEIBERLING URGE REPARATIONS TALK

Two Akron rubber industrialists were among the 53 nationally recognized business leaders giving their views on debts, reparations and tariffs to the League of Nations' Association, Inc., recently, in its drive for congressional action.

According to statements issued by the association, James D. Tew, president of the B. F. Goodrich Company, and F. A. Seiberling, president of Seiberling Rubber Company, have pronounced views on the subject of world economics and American prosperity.

"I believe world economic conditions are so closely interwoven with questions of international debts, reparations and tariffs that these problems must be solved before permanent economic rehabilitation is possible," Mr. Tew was quoted as saying.

"Therefore, in my opinion, any international conference on economics which excludes these items could not fully accomplish desired results."

Mr. Seiberling was quoted as saying:

"The conference should consider debts, reparations and tariffs, notwithstanding public opinion in our country is at present opposed to cancellation of debts and the lowering of tariffs."

Giant Rubber Sets Record

June production and sales with the Giant Tire and Rubber Company, Akron, O., will set a new all-time record, according to J. W. Eldred, sales representative of the Giant organization. The company together with the Falls Rubber Company of Akron, and the Cooper Corporation of Findlay, comprise the Master Tire and Rubber Corporation.

According to Mr. Eldred, all three divisions of the Master corporation are working three eight-hour shifts seven days in the week to supply dealers with tires on orders. R. P. Bremer, president of the Master corporation, says the three companies have orders to keep factory wheels turning to the greatest capacity in the history of any of the companies.

Army Awards Blimp Contract

Goodyear Tire and Rubber Company has received the contract for the envelope of America's largest non-rigid, the TC-15, the cabin of which the company is already constructing for the army. The cabin contract was received some time ago.

The TC-15 is to be a 350,000 cubic foot ship. France is reported to have had larger non-rigids than that, but it will be the largest built for this government.

Several novel features are being built into the cabin. Provision is to be made for an observation car which can be lowered during flight similar to that built for the *U.S.S. Akron*.

Clyde Lowe Moves

The Clyde E. Lowe Company, Cleveland, O., manufacturers of circular tube curing mandrels and calender shells, announces the moving of its factory from 2976 East 81st Street to 9016 Manor Avenue, Cleveland.

Combating Tire Adjustments

In a further effort to avoid returns and unwarranted adjustment losses from dealers on tires and tubes which have failed through no fault of manufacture, the Rubber Manufacturers Association is distributing through its members, and in turn through their dealers, small sized posters showing the causes of fabric breaks, rapid tire tread wear and truck tire failures, through improper installation, poor and inadequate inflation and misalignment. Copies of these posters are free upon request to the Association.

Scrap Rubber Hearing

At the rubber hearing before the Central Freight Association at Chicago, May 17th, to consider reduced rates on scrap rubber and tires, also reclaimed rubber in Central Freight Association Territory, the tire manufacturers were represented by Mr. Knox of the Firestone Tire and Rubber Company, Mr. Wells of the B. F. Goodrich Company, and Mr. Cockrell of the Seiberling Rubber Company, while George Birkenstein, President of the National Association of Waste Material Dealers, Inc., H. J. Seidenberg of H. J. Seidenberg and Company, and Charles Muehlstein of H. Muehlstein and Company represented that association. There were also present other large dealers in scrap rubber and tires.

The basis proposed of 20 per cent of first class in lieu of the present basis of sixth class (27½ per cent of first class) on scrap rubber and tires and sixth class instead of fifth class on reclaimed rubber and rubber shoddy, was supported by competent testimony of the interested shippers present.

The fact was stressed that several reclaiming plants were now closed down and that more would follow suit unless some relief was afforded in the way of freights, on both the scrap inbound and the reclaimed rubber outbound, which would make it profitable for the dealers to accumulate and the reclaimers to manufacture. The shutting down of the reclaiming plants means a loss of revenue to the carriers not only on the scrap rubber but on other inbound materials incidental to the manufacture of reclaimed rubber, such as coal, chemicals and other supplies, and also on the finished product.

Final disposition of the matter is expected shortly.

Rim Committees Meet

Two committees of the Tire and Rim Association met at the B. F. Goodrich Company offices June 23 to discuss technical matters. They were the pneumatic tire standards committee of which Henry Schippel, Goodrich tire engineer, is chairman, and the rim standards committee of which W. S. Brink of the Firestone Steel Products Company is chairman.

Russell Gets Big Order

The Russell Manufacturing Company, Middletown, Conn., manufacturer of Rusco brake linings and other automotive products, reports an order for 54,000 clutch facings from a Detroit manufacturer.

CONTINENTAL RUBBER DECLARES 8% DIVIDEND

The Continental Rubber Works Company (Gummi-Werke A.-G.), Germany, has declared a dividend of 8 per cent for 1931, the same as the year before. This action was taken at the annual meeting of the shareholders, despite the fact that the management recommended a 6 per cent dividend, desiring to follow a very conservative policy in view of the world-wide depression.

The ability of the company to maintain earnings and dividends under prevailing unfavorable conditions is ascribed in its annual report to the policies consistently pursued since the war. Technical aid from a friendly American concern and building up of liquid resources are both held markedly responsible for present results. Flotation of a bond issue of 20,000,000 reichmarks in 1926 helped to make the company entirely independent of bank loans, it is pointed out. The report also refers to the ability of the company to keep ownership of its shares within the country, and to avoid seeking to place any large amount of shares with either large debtors or large creditors.

The drop in sales volume and the lower prices received were offset largely by reduced raw material costs and by rigid internal economies. The number of employees and officials was reduced by the end of the year to 11,000, as compared with about 13,000 a year before.

The reduction in sales volume has persisted thus far in 1932, while rubber and cotton prices have been severely deflated further, the management states. World economic conditions also severely affect the export business of the company, it is indicated.

After the declaration of 8 per cent in dividends, the company reported a carry forward of 353,156 marks for the 1932 account.

Birmingham Goodyear Active

The Dixie plant of the Goodyear Tire and Rubber Company, at Birmingham, Ala., after a month's steady activity turning out tires and tubes to capacity, taking a lead on the new revenue tax of the government, is back on the five-day schedule.

Rubber Stock Quotations

	Last Price		—1932—	
	July 5	June 20	High	Low
Aetna	1⅝	1⅝	3	1⅝
American Hard Rubber	—	—	—	—
Faultless	18½	18½	25	12
Firestone	—	11¼	15	10¾
do. 6% pfd.	46	46¾	59½	45½
Fisk	⅛	⅛	⅜	⅛
do. 1st pfd.	⅜	⅜	⅞	¼
General	45	45	45	25
do. pfd.	60	60	—	—
Goodrich	2½	2¾	5⅝	2¼
do. pfd.	8	11	17	7
Goodyear	6⅝	8¼	18¾	5½
do. 1st pfd.	19¾	—	61	19¾
India	1¾	2	7	½
Kelly-Springfield	⅞	⅞	2⅞	½
do. 6% pfd.	18	30	30	16
Lee	2¼	2⅛	2⅛	2
Mohawk	1¼	1¼	2½	1
do. pfd.	20	20	—	—
Norwalk	1	1	—	—
Pirelli	—	23	31¾	21
Raybestos-Manhattan	5	5	11½	4⅞
Seiberling	1	—	4½	1
do. pfd.	15	15	22	15
Thermoid	1¼	1⅜	3	⅞
U. S. Rubber	2	2¼	5⅜	1¼
do. pfd.	4	5	11½	3¾

Endicott Johnson Report

Endicott Johnson Corporation and subsidiaries report for six months ended June 4, 1932, a net loss of $4,580 after taxes, interest, depreciation, inventory, adjustments, etc. In the preceding fiscal year, the company reported for six months ended July 3, 1931, and showed net profit of $1,333,753 equal after dividend requirements on 7% preferred stock, to $2.51 a share (par $50) on 405,360 shares of common stock.

Current assets as of June 4, last, including $4,975,769 cash and United States Government securities, amounted to $23,440,425 and current liabilities were $1,779,656. This compares with cash and United States Government securities of $5,625,126, current assets of $26,185,701 and current liabilities of $2,416,178 on July 3, 1931.

American Cyanamid Co.

In order to more effectively coordinate the technical and sales activities of the various affiliated companies of the American Cyanamid and Chemical Company a consolidation of the sales functions of the following subsidiary organizations will become effective July 1st: American Cyanamis Company, supplying sulphur and accelerators to the rubber industry; A. Klipstein and Company, supplying rubber chemicals and general industrial chemicals to the industry; American Cyanamid Sales Company; Kalbfleisch Corporation; John C. Wiarda, Inc.; Superior Chemical Company, Inc.; and Fumigators Supply Company.

Naugatuck to Take Vacation

Naugatuck Chemical Company will suspend all possible manufacturing operations from August 6 to August 20, to allow time for general repairs and an inspection of factory equipment and also to permit all company employes to take two weeks vacation at one time. Offices of the company both in New York and Naugatuck, Conn., will be open, however, for such business as might require immediate attention.

Stedman Dividend

The board of directors has declared the 55th consecutive quarterly dividend of $1.75 per share on the preferred stock of Stedman Rubber Flooring Company, South Braintree, Mass., payable July 1, 1932, to stockholders of record at the close of business June 25, 1932.

Armstrong Active

The Armstrong Rubber Company of West Haven, Conn., has increased its force with the addition of 100 employes. Day and night shifts have been working at the plant since June 1. Armstrong manufactures tires and tubes, which are chiefly distributed in this section of New England.

N. J. Zinc Maintains Dividend

The New Jersey Zinc Company has declared its regular quarterly dividend of 50 cents per share, payable August 10, to stockholders of record of July 20.

Names in the News

E. H. Broadwell, who has had charge of manufacturers' sales of The Fisk Rubber Company, has resigned effective July 1st. He has made no plans for the immediate future but may assist some committee in the reorganization of Fisk, as he believes under a proper set-up, Fisk can play an important part in the industry.

H. A. Brittain, manager of the passenger car division of the Goodyear Tire and Rubber Company, has been elected president of the Goodyear Riding Club. He succeeds John Shiner, formerly of the advertising department of Goodyear, who was recently transferred to Cleveland.

Dr. Webster N. Jones, one of the inventors of Lewisite during the World War and until recently superintendent of the processing division of the B. F. Goodrich Company, has been appointed director of engineering at the Carnegie Institute of Technology, Pittsburgh, Pa., and will leave Akron shortly.

Dr. Jones has been with the Goodrich organization since 1919 and has been in charge of all raw materials, fabric and chemical testing activities since 1928. He has taught at Purdue, Harvard, Maine, Montana and Missouri Universities and has written extensively on chemical and rubber topics.

Congressman Francis Seiberling was a recent visitor to Akron where he came to attend the meeting of the board of directors of the Goodyear Tire and Rubber Company. He started back to Washington immediately afterwards.

Harry B. Hamlen, former manager of the credit department of Goodyear Tire and Rubber Company, has been appointed assistant treasurer of the company. In announcing the action of the board of directors, it was pointed out that the promotion was a well-deserved one. Mr. Hamlen has been with the Goodyear organization since 1905. His first duties were in the solid tire department, or as it was then known, the carriage tire department, carriage tires being the principal product. He became manager of the credit department in 1909.

Walter G. Higgins

Walter G. Higgins, of the sales division of the United Carbon Company, died at his home in Caldwell, N. J., on June 22, 1932. He was the son of William W. Higgins, who has been identified with the carbon black industry for the past 30 years.

Mr. Walter Higgins started in the plants of his company and learned the business from the ground up, joining the sales division about three years ago. He was educated at Columbia and New York Universities and was formerly connected with the Standard Oil Company of New Jersey.

He is survived by his widow, one brother, his father and his mother.

J. P. Coe, general factory manager of the Naugatuck Chemical Company's chemical and reclaiming plants at Naugatuck, Conn., is recovering from a severe attack of appendicitis, with which he was suddenly taken on June 17. Mr. Coe is now entirely out of danger and is expected to leave the hospital within a few days but he will not return to work for several weeks. His home is at Woodbury, Conn.

Arthur Surkamp, comptroller, United States Rubber Company, has been appointed to the advisory committee of the Comptrollers' Council of the American Management Association.

Guy Blanchards, publications editor of B. F. Goodrich Company, who was recently injured in an automobile accident near Meadville, Pa., has returned to Akron and hopes to soon be able to take up his duties again at the Goodrich offices.

The First Automobile Sale

R. J. Mills of Pottsville, Pa., who with the late Robert Allison of the same city purchased the first American automobile ever sold for private use was an Akron visitor Thursday, June 16. He went there to visit his son, Robert H. Mills, 885 Whittier Avenue, Ohio manager for the Atlantic Refining Company. While in the city, the elder Mills visited The B. F. Goodrich Co., where he witnessed the manufacture of rubber products for the first time.

Messrs. Allison and Mills, both of whom were engineers, came to Cleveland in 1898 to look at the new Winton, which the manufacturers claimed would run. They amazed Alexander Winton by stating they came to buy.

After a demonstration they ordered the automobile and had it shipped to Pottsville. With some difficulty and much curiosity, the car was driven from Pottsville to Port Carbon, a few miles away, where Allison lived.

"It took us the better part of a day to get there, but we arrived exhausted," Mills said.

"In those days we had to plan our trips according to the location of blacksmith shops. We experienced much difficulty with that first model, but were repaid in the experience we had.

"At every moment we were under suspense, expecting some mechanical fault, a blow-out or ignition failure. We stopped at every spring, stream or watering trough to drain and refill the radiator.

"Our first tires were of the single tube type and we were lucky if we got 1,000 miles out of them. I remember when we took our first ride, how we bounced over the road and hardly were able to keep our seats."

The original automobile was returned to the Winton Company and later placed in the Smithsonian Institute in Washington, where now it is permanently exhibited.

Rubber News Around the World

TIRE SALES DROP IN SOUTH AFRICA

The first quarter of 1932 witnessed a falling off in South African sales of automobile tires, as compared with the last quarter of 1931, according to reports to the Department of Commerce. This decline, however, has not been spectacular, according to local merchants, some lines and sizes retaining approximately normal sales volumes.

A variety of conditions existing in the Union for several months past has contributed considerably to restricted sales in most commodity lines, and there has developed a distinct tone of uncertainty in trading circles. In the agricultural areas especially this wave of reserved buying has been noted. For some time, the farmers have, as a result of their substantially reduced incomes, exercised great conservatism in making any purchases which require cash payments, or in any respect burden their credit. The farming element, for the most part, is operating on as narrow a margin as is possible, and many farmers who have cars are running them at a minimum, and this condition is reflected in tire sales in the farming districts.

In the principal industrial centers and the larger cities the trade has held up better, but competition has been especially keen, with a natural emphasis placed on price, discounts, rebates, and other trade inducements. The shortage of money and credit on the part of dealers has quickened their interest in any concessions on the part of tire distributors, which will extend their credit and will assist them in turning over their stocks.

A number of foreign operators such as Michelin, Pirelli, India, and Engelbert, are apparently observing no stable sales policy, but on the whole their sales are not sufficiently large to create a serious situation.

It is difficult, if not impossible, to arrive at a definite estimate of stocks of tires on hand. This is a condition which is influenced primarily by the fact that the companies operating on a consignment basis in South Africa—and most of them are—do not maintain comparable consignment policies. The best informed members of the automotive tire trade are of the opinion that the stocks on hand are more than sufficient to meet the ordinary demands of the market, especially since it has been operating on a depressed basis.

Tire sales in the Union during the coming quarter are not encouraging. Economic uncertainty in South Africa, as well as through the world, together with the influence of substantially reduced incomes, points to a maintenance of sales at the same level, or possibly a little lower. Most automobile owners in the salaried class have suffered reductions, and they are postponing purchases as long as possible.

United States exports of automotive rubber products to the Union of South Africa amounted to $99,324 in value during the first four months of 1932, compared with $102,146 in the same period of 1931, a decline of 2.8 per cent.

Curtains Silence Noise

Lady Mount Temple, well-known London society woman, has hit on a novel idea in her new house in Wood Street, in the south-west of the metropolis. The dining room of her dwelling, Gayfere House, faces directly on the street, and the noise of the traffic outside makes conversation difficult. By draping the walls with curtains made of white rubber, Lady Mount Temple has eliminated much of this trouble. The rubber curtains have a remarkable silencing effect in keeping out the street noises. They also look very pleasing on the rough-surfaced white walls. Everything else in the room is white to match.

Strike Ends at Gutta Percha

With practically every striking employee now registered for employment, and a number actually working, the strike at the plant of Gutta Percha and Rubber, Ltd., Toronto, ended recently when the strikers agreed to the terms and offers of the management. New workers, who were taken on during the strike, will be retained, the management stated.

"The most regrettable feature of the affair was the fact that the action of about 200 workers in the shoe factory automatically forced 300 additional employees in that department to remain idle," said a company statement. "The interlocking system of production made this inevitable. Fortunately, the majority of the workers employed by Gutta Percha and Rubber, Ltd., in Toronto were able to continue at work without interruption."

Latex in the Shoe Trade

The Rubber Growers Association of London has recently published an interesting booklet on "The Use of Rubber Latex in the Shoe Trade." The pamphlet is a resume of the developments in connection with this comparatively new application of rubber. Among the subjects treated are Resoleing with Leather by Use of Latex; Soleing with Crepe or Vulcanized Rubber Soles by the Use of Latex; Use of Latex and Crepe Rubber in the Manufacture of Gymnasium Shoes, House and Bath Slippers.

World Registration Drops

World registration of automobiles decreased 1.5 per cent at the end of 1931 to 32,263,397 from a previous high-water mark of 35,805,632 at the end of 1930, according to the Department of Commerce official figures, made public recently.

Passenger cars were down 2.1 per cent, trucks were up 1.4 per cent and buses were up 6 per cent. At the end of 1931 the United States had 25,986,353 cars, a decrease of 711,045 from 1930; France had 1,713,368, a gain of 253,718; United Kingdom, 1,570,173.

NETHERLANDS TIRE IMPORTS DECLINE

Tire sales in the Netherlands during the first three months of 1932 were slow, under the influence of present-day economic difficulties and imports of stocks from England, as result of low sterling exchange. At end of the quarter it appeared that stocks in the hands of importers and dealers were high.

Imports of automobile tires during January and February were on a somewhat higher level than in the same period of 1931. Solids and cushions were less, but motorcycle tires were substantially more.

Imports of automobile casings amounted to 22,365 units valued at 531,000 florins, as compared with 21,101 valued at 647,000 florins in the corresponding period last year, according to Department of Commerce statistics. Those of inner tubes totaled 16,482 units valued at 63,000 florins, and 15,921 valued at 75,000 florins, in the respective periods. A substantial increase occurred in casings imported from the United States (8,705 units valued at 187,000 florins from 5,119 valued at 159,000 florins) and also Great Britain (5,963 valued at 146,000 florins from 3,353 valued at 107,000 florins), but practically all other suppliers—especially Germany—registered decreases. The only country to record an advance for inner tubes was the United States, and this increase is very heavy—to 8,362 units valued at 27,000 florins from 2,350 valued at 12,000 florins. Among other suppliers, Belgium recorded the largest decrease.

It is the opinion of some dealers that discount and market conditions in the Netherlands are probably today the worst ever experienced in this country. The opinion has been expressed that it might be better to negotiate only with truck fleet owners.

Concerning the trials which were conducted in use of balloon tires for busses, it is now reported that trade in this equipment is constantly growing. Formerly heavy busses were entirely equipped with high pressure pneumatic tires.

The air wheel has been brought on to the Netherland market earier in the year by a firm importing American tires and a demonstration held in presence of newspaper men.

Bicycle tires have been placed on an import quota basis, for the 3-month period March 1 to May 31, 1932. The allowance is 95 per cent of the average quantity imported quarterly during the years 1928, 1929, and 1930.

D. E. I. Shipments Increase

As in the case of British territories last month, Dutch East Indies shipments of crude rubber were increased during May, the total being 19,422 tons, compared with 17,952 tons during April, and with 25,530 tons during May, 1931.

The increase in the total was accounted for by larger rubber shipments from the East coast of Sumatra, the rest of Sumatra, and Borneo. Smaller quantities were exported by Java, Madoera, and Celebes.

New Tire Construction

A new type of construction designed to prolong the life of heavy service tires is announced by the United States Rubber Company. The type is known as "shock ply" construction.

"Shock ply" construction provides for the use of two cord breaker plies of special design embedded in the tread rubber and extending from bead to bead that serve as a new means for anchoring the tread and sidewalls to the carcass. During curing the tread rubber beneath the shock plies blends with the carcass cushion rubber and serves to still further weld the tread and carcass into a single unit.

Company officials claim the following advantages are offered by "shock ply" construction: 36 per cent greater resistance to tread separation; 33 1/3 per cent greater resistance to side cover blows; and 15 per cent greater resistance to broken fabric.

New Tractor Tire

A patent covering on a new type of tractor cushion tire known as the "Zero Pressure" was granted recently to Henry F. Schippel, B. F. Goodrich Company tire engineer, and was assigned to the Goodrich company.

The new tire is designed to provide a snow-shoe effect in loose or soft soil, having a tread which deflects readily under moderate loads providing unusual tractive qualities, the patent petition states.

The tire, it is claimed, also eliminates rebound, rides easily, will not damage pavements, and requires no inflation.

Dunlop Plantation Costs

The f.o.b. costs, including all estate, manufacturing, and general charges in the East, excluding depreciation, which amounted in 1927-28 to 6.335d. per pound of sheet rubber, were reduced to 3.056d. per pound in 1930-31. These costs have been further reduced during the current year to date, to 2.460d. per pound, and a further reduction is anticipated during the remainder of this year. In the future, when the high yielding bud-grafted areas come into bearing, considerable further reductions are expected. The estates have been fully maintained. These costs were realized on old type rubber, not on areas planted with selected seed and high yielding stock.

Goodrich To Hold Picnic

The annual "play day" for B. F. Goodrich Company employees will be held Monday, August 8, at Euclid Beach Park, Cleveland, it was announced recently by Arthur C. Sprague, employment manager and chairman of the outing committee.

A large majority of the Goodrich organization favored holding the picnic at the Lake Erie resort again this season, a questionnaire to all employees disclosed.

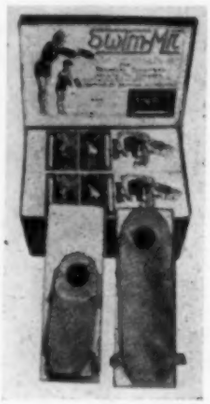
Although the program is not definitely decided, the annual Goodrich-Miller softball game, children's and girls' beauty contests and usual athletic contests will make up the main program events.

The park will be consigned to Goodrich for the day and practically all concessions will be free to those wearing Goodrich identification.

New Rubber Goods

"Swim-Mits"

A new device to dispel fear and inspire confidence in timid or inexperienced swimmers and which also can be used in water sports, has been patented and is being manufactured by the Swim-Mit Company, 203 South Dearborn Street, Chicago, Ill. The device consists of two inflated rubber tubes, securely fastened to the forearms and hands, which will bouy the body so that the head of the swimmer may be kept above the surface of the water at all times. They are constructed of live, resilient rubber tubing, approximately three inches in width, uninflated, and ten inches long. The ends are securely vulcanized and three straps for securing the tube to the forearm are affixed. A patented hook on the two rear straps enables the wearer to adjust them quickly,



yet they cannot become loosened accidently unless manipulated by hand.

Swim-Mits are easily and quickly inflated by lung power. A valve, composed entirely of rubber, is vulcanized into the forepart of the tube. The mits are inflated by simply blowing into this valve; yet to deflate them, hand manipulation is necessary.

Not only will Swim-Mits buoy the body while in the water—they are an actual aid in swimming. The manufacturers state that they have been tested and approved by many well known swimming instructors. As the tubes are no impediment to the use of the hands and arms, the least exertion of arms or feet will propel the wearer through the water.

Swim-Mits are of sufficient buoyancy to float any adult. They are also made in children's size. Every precaution has been taken to remove the possibility of accident while in use. The rubber tubing is too heavy to be easily punctured; the valve cannot be opened except intentionally, and the arm straps are of such construction that they cannot be removed from the arm other than by intentional means.

Webb "Gam-Bal"

C. B. Webb Company, 200 Fifth Avenue, New York, N. Y., distributors of the Weaver Health Balls, are introducing a new line of rubber balls known as the Webb "Gam-bal." These balls were especially constructed for physical educational work and for all purposes where an exceptionally durable rubber ball is necessary. It is molded from the best grade auto tire stock and is guaranteed

against deflation for nine months. It is equipped with a Schrader valve of the same type as is used in high grade automobile tires. Among the outstanding features of the Gam-Bal are the facts that it inflates round, bounces true and its weight is guaranteed to be correct, the same as required in regulation equipment.

"Skyway" Shoes

The Cambridge Rubber Company, Cambridge, Mass., have added a new line to their footwear products, which they are marketing under the trade name of "Vita-Ray Skyway." The salient feature of the new shoe is the strong mesh upper, making it cool wearing on warm summer days, the ventilating afforded also keeping the foot dry from perspiration. The shoe is strongly built and

carries the "hygia" insole, which in turn carries an athletic shaped style of arch support. The rugged rubber outersole gives the shoe additional wearing qualities.

Novelty Balloons

The Oak Rubber Company, Ravenna, O., have introduced three new items to their line of toy balloons, the "Oscar Owl," "Jolly Joey" and "Doc Stork." The body and head in each case is of seamless, one-piece construction, easy to assemble and come in attractive packages. All of the novelties are made by the company's "Hy-Tex" process, which it is claimed, gives a product having a much greater tensile strength than the ordinary toy balloon.

PACIFIC COAST PLANTS SPEED UP PRODUCTION

A general increase in the tire and rubber industry of southern California has necessitated the re-employment of more men and the stepping up of working hours by the Pacific Goodrich Tire and Rubber Company plant, the Samson division plant of the United States Rubber Company, and the Goodyear Tire and Rubber Company of California, all located in Los Angeles.

A report made public by T. B. Farrington, vice-president of the Goodrich plant, announces that the business of the company has increased 30 per cent over last year.

H. E. Malcomb, Pacific Coast sales manager for the Samson division plant of the United States Rubber Company, reports that the plant has increased its working force 40 per cent, or approximately 300 more employees. The Samson plant is also working on a twenty-hour basis.

Rubber Shipments Drop

Rubber shipments from British growing territories in the Far East resumed the decline in June after having shown an increase during May. British Malaya exported a gross total of 36,566 tons of crude rubber last month, as compared with 40,297 tons during May, and with 39,397 tons during June, 1931.

The island of Ceylon shipped 3,614 tons, against 4,138 tons during May and 5,242 tons during June, 1931. Of this amount 2,231 tons were exported to the United States, against 2,300 tons in May and 3,513 tons in June, 1931.

Naugatuck Appoints Agent

The Naugatuck Chemical Company, New York City, N. Y., manufacturers of accelerators, antioxidants and reclaimed rubber, announce the appointment of H. M. Royal, Inc., Los Angeles, Calif., as sales representatives on the Pacific Coast, effective July 1. E. B. Curtis, vice-president of the Naugatuck company, is expected to start on a trip to the Coast early in August to confer with the new agents and call on the trade.

Dryden Door Mats

A door mat of cellular rubber and bristles, combining the merits of the cocoa fiber mat and the ordinary solid rubber mat, is the latest product of the Dryden Rubber Company, 1014 South Kildare Avenue, Chicago, Ill. Besides being attractive in appearance it is easily cleaned and maintained in a sanitary condition. It is available in two colors, green and maroon, and in three sizes, 16 x 27, 18 x 30, and 22 x 36 inches.

Firestone Holds Outing

Employees of the Firestone Rubber Company and their families gathered at Chippewa Lake Park, Akron, on June 25, for the annual Xylos picnic and outing of Steel Products, plant one.

The morning was devoted to running off the sports events, which began with a money grab for boys and girls up to the age of 12. A sack obstacle race for boys under that age followed, together with tire rolling contests, spoon and egg obstacle races, head balance races and an egg-tossing contest.

A real wild west rodeo, featuring circus stars, clowns, bull fighters, Indians, performing horses, comedy mules and steer "bulldoggers," provided the entertainment.

Hold Steak Roast

One hundred members of the machine and process development design of the B. F. Goodrich Company attended their annual steak roast at The Log Cabin, Turkeyfoot Lake, Akron, June 23. Horseshoe pitching was one of the main diversions. O. E. Vick headed the committee.

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RUBBER—COTTONS AND FABRICS—CHEMICALS

NEW YORK, JULY 5, 1932

Crude Rubber

THE dullness of the market in crude rubber over the last two weeks is reflected in the almost complete lack of fluctuations in price levels. Trading centers have settled down to a realization that nothing can help the market as long as shipments continue from the Far East in present volume and the economic situation in manufacturing centers makes it impractical to increase consumption.

Trading has been extremely dull with only hand to mouth orders and little speculative interest. The reported spurt in activities in the Ohio rubber concerns is apparently confined to the smaller concerns which are buying their requirements as needed.

Prices as of July 5, remained practically the same as last recorded and were as follows:

Plantations—			
Ribbed Smoked Sheets—			
Spot-July		.02⅝@	.02¾
Aug.-Sept.		— @	.02¾
First Latex, crepe spot		— @	.03½
Amber Crepe, No. 2		— @	.02⅝
Amber Crepe, No. 3		— @	.02⅝
Amber Crepe, No. 4		— @	.02½
Brown Crepe, Clean thin		— @	.02⅝
Brown Crepe, rolled		.02¼@	.02⅝
Latex—			
Liquid Latex, per gal.		.70 @	.75
Paras—			
Up-river, fine		— @	.05½
Up-river, coarse		Nominal	
Acre, Bolivian, fine		— @	.06
Caucho Ball, Upper		— @	.03
Centrals—			
Central scrap		.04 @	—
Esmeraldas		.04 @	—
Balata—			
Block, Ciudad		— @	.18

LONDON MARKET

Standard Ribbed Smoked Sheets—Buyers

July	1 11/16@ 1⅝d
Oct.-Nov.	1⅞@1 15/16d

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—Sellers

Spot	——@ 1½d

Reclaimed Rubber

There has been no change in the prices for standard grades of reclaimed rubber recorded over the last two weeks. Producers report that their prices are already at rock bottom and cannot follow further the decline in crude prices. Production is being maintained on a greatly curtailed scale and demand is centered largely with those concerns who have more or less definitely established reclaimed in their compounding practices. Latest quotations follow:

High Tensile			
High Tensile Red	lb.	.04¾@	.05
Super-Reclaim Black	lb.	.05 @	.05¼
Shoe			
Washed	lb.	.05½@	.05¾
Tube			
No. 1 (Floating)	lb.	— @	.06½
No. 2 (Compounded)	lb.	.04½@	.04¾
Tires			
Black	lb.	.03¾@	.04
Black, selected tires	lb.	.04 @	.04¼
Dark Gray		.05 @	.05¼
Light Gray	lb.	.05½@	.06
White	lb.	.05½@	.05¾
Truck, Heavy Gravity	lb.	.05 @	.05¼
Truck, Light Gravity	lb.	.05¼@	.05½
Miscellaneous			
Mechanical blends	lb.	.03 @	.03½

Scrap Rubber

The prevailing low prices for scrap rubber have forced dealers to make every effort to effect accumulations but the market is becoming less and less attractive to scrap handlers. Curtailments in reclaim production has also limited the scrap demand. Late prices are quoted as follows:

(Prices to Consumer)

Auto tire peelings	ton	17.00	@18.00
Mixed auto	ton	6.50	@ 8.00
Bicycle tires	ton	5.00	@ 6.00
Clean solid truck tires	ton	20.00	@22.00
Boots and shoes	ton	15.00	@17.50
Arctics, untrimmed	ton	10.00	@12.50
Inner tubes, No. 1	lb.	.02¼@	.02½
Inner tubes, No. 2, compounded	lb.	0.1¼@	.01⅝
Inner Tubes, Red	lb.	.01⅝@	.01¾
Air Brake Hose	ton	8.00	@ 8.50
Rubber Hose	ton	7.00	@ 8.00

Cotton

COTTON has advanced within the last few days after a relatively steady market. Wet weather in the cotton belt and rumors of weevil damage contributed to the market advance. There was also further buying interest evident from textile centers but not sufficient to unduly stimulate price levels and most of the trading was of a speculative nature.

High, low and closing prices on raw cotton on the New York Cotton Exchange, as of July 5, were as follows:

	July 5			June 20
	High	Low	Close	Close
July	5.84	5.73	5.77	5.19
Oct.	5.98	5.86	5.91	5.43
Dec.	6.12	5.99	6.05	5.58

Tire Fabrics

No marked change in tire fabric prices was recorded during the past fortnight. The already prevailing low levels have not even been of sufficient attraction to stimulate buying interest and the market has remained dull. Late quotations on the most important standard constructoins follow:

(Prices Net at the Mill)

CORD			
Peeler, carded, 23/4/3	lb.	.21¾@	.22
Peeler, carded 23/5/3	lb.	.20¾@	.21
Peeler, carded, 13/3/3	lb.	.17¾@	.18
Peeler, carded, 15/3/3	lb.	.18¾@	.19
Egyptian, carded, 23/5/3	lb.	.31¾@	.32
Egyptian, combed, 23/5/3	lb.	.36¾@	.37
CHAFERS			
Carded, American, 8 oz.	lb.	.16½@	.17
Carded, American, 10 oz.	lb.	.16½@	.17
Carded, American, 12 oz.	lb.	.16½@	.17
Carded, American, 14 oz.	lb.	.16 @	.16½
LENO BREAKER			
Carded, American, 8¼ oz.	lb.	.17 @	.20
Carded, American, 10¼ oz.	lb.	.17 @	.20
SQUARE WOVEN			
Carded, American, 17¼ oz. 23-11 ply	lb.	.20½@	.21½
Carded, American, 17¼ oz. 10 ply	lb.	.16 @	.16½

Sheetings

The market for sheetings remains dull and devoid of buying interest. Prices have not changed since last reported. Late quotations were as follows on the principal tire constructions:

40 inch, 2.50 yard	yd.	.04½@	.04⅝
40 inch, 2.85 yard	yd.	.03⅞@	.04
40 inch, 3.15 yard	yd.	— @	.05
40 inch, 3.60 yard	yd.	— @	.04
40 inch, 3.75 yard	yd.	.03½@	.03⅝
40 inch, 4.25 yard	yd.	.03 @	.03⅛

Ducks

The market for ducks remains as quiet as it has been for some time and no changes in prices have been reported. Last prices noted were as follows:

Enameling	lb.	.16¾@	.17¾
Belting and Hose	lb.	.18 @	.18½
Single filling	lb.	.07 @	.07¼
Double filling	lb.	— @	.09¼

Closing Prices on Rubber Exchange of New York, Inc.

No. 1 Standard Contract of 10 Tons*

FROM JUNE 21 TO JULY 5, 1932

	Spot	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Sales
June 21	2.69	2.63	2.66	2.71	2.76	2.81	2.86	2.91	2.96	3.01	3.06	3.12	——	——	55
22	2.65	2.58	2.61	2.66	2.72	2.76	2.81	2.86	2.93	2.99	3.05	3.11	——	——	94
23	2.65	2.58	2.61	2.65	2.70	2.75	2.81	2.87	2.92	2.98	3.03	3.09	——	——	76
24	2.56	2.53	2.56	2.60	2.64	2.70	2.75	2.81	2.87	2.93	2.99	3.05	——	——	146
25	2.56	2.53	2.55	2.59	2.63	2.69	2.75	2.81	2.87	2.93	2.98	3.04	——	——	35
27	2.56	2.52	2.55	2.59	2.64	2.70	2.75	2.81	2.87	2.92	2.97	3.03	——	——	68
28	2.56	——	2.53	2.58	2.63	2.69	2.74	2.80	2.86	2.92	2.97	3.03	——	——	90
29	2.60	——	2.59	2.63	2.67	2.72	2.78	2.84	2.90	2.95	3.00	3.06	——	——	114
30	2.60	——	2.59	2.62	2.65	2.70	2.75	2.80	2.86	2.92	2.99	3.05	——	——	68
July 1	2.60	——	2.57	2.61	2.66	2.71	2.76	2.81	2.88	2.94	3.01	3.07	——	——	42
5	2.60	——	2.60	2.63	2.68	2.73	2.79	2.85	2.92	2.97	3.02	3.08	——	——	14

*This contract will be superceded by "No. 1 B Standard" on April 1, 1933.

CHEMICALS

SPORADIC activities in the industry have brought about some new purchasing of rubber chemicals over the past two weeks, aside from the steady flow of regular business which has been present even through the worst days of the depression. No changes in the price range of rubber chemicals have been reported during the past fortnight. The latest quotations follow:

ACCELERATORS

Organic			
A-1	lb.	.24 @	.27
A-5-10	lb.	.33 @	.36
A-7	lb.	.55 @	.59
A-11	lb.	.62 @	.66
A-16	lb.	.57 @	.61
A-19	lb.	.58 @	.62
A-20	lb.	.64 @	.68
A-32	lb.	.80 @	.95
Aldehyde ammonia, crystals	lb.	.65 @	.70
Altax	lb.		
Captax	lb		
Crylene	lb.	.55 @	.65
paste	lb.	.45 @	.55
Di-Ortho-Tolyguanidine	lb.	.42 @	.44½
Diphenylguanidine	lb.	.30 @	.32½
Ethylidene aniline	lb.	.45 @	.47½
Formaldehyde aniline	lb.	.37½@	.40
Heptene	lb.	.40 @	—
Hexamethylene-tetramine	lb.	.58½@	.61
Lithex	lb.	.18 @	.20
Methylenedianiline	lb.	.37½@	.40
Monex	lb.	3.25 @	—
Oxynone	lb.	.68 @	.80
Phenex	lb.	.50 @	.55
R & H 40	lb.	.40 @	.41
R & H 50	lb.	.40 @	.41
R & H 397	lb.	.75 @	.76
R-2	lb.	1.95 @	2.15
Safex	lb.	1.20 @	1.25
SPDX	lb.	.75 @	—
Super-Sulphur No. 1	lb.		
No. 2	lb.		
Tensilac, No. 39	lb.	.40 @	.42½
Tensilac, No. 41	lb.	.50 @	.52½
Thermio F	lb.	.50 @	.55
Thiocarbanilid, drums	lb.	.20 @	.22
TMTT	lb.	3.00 @	3.25
Trimene	lb.	.75 @	—
base	lb.	1.20 @	—
Triphenylguanidine	lb.	.58 @	.60
Tuads	lb.		
Ureka	lb.	.75 @	1.00
Vulcanex	lb.		
Vulcone	lb.		
Vulcanol	lb.		
Z-88-P	lb.	.50 @	.60
Zimate	lb.		
Inorganic			
Lead, sublimed blue	lb.	.08¼@	—
Lead, white	lb.	.08½@	.08¾
Litharge, domestic	lb.	.06¼@	.07
Magnesia, calcined,			
light	per 100 lb.	5.35 @	5.45
heavy	per 100 lb.	3.65 @	3.75

COLORS

Blacks (See Compounding Materials)

Blues			
Prussian	lb.	.35 @	.36
Ultramarine	lb.	.06 @	.32
Browns			
Sienna, Italian	lb.	.05½@	.12½
Umber, Turkey	lb.	.04½@	.07
Greens			
Chrome, light	lb.	.30 @	.32
medium	lb.	.31 @	.33
dark	lb.	.34 @	.36
Chromium Oxide, bbl.	lb.	.34½@	.35½
Reds			
Antimony			
crimson, 15/17	lb.	.40 @	.44
sulfur, free	lb.	.56 @	.66
golden, 15/17 F.S.	lb.	.20 @	.25
Indian English	lb.	.08 @	.11
Domestic (Maroon)	lb.	.11 @	—
Red oxide, pure	lb.	.10 @	.12
Rub-Er-Red, f.o.b. Easton	lb.	.08¾@	—
Whites			
Lithopone, Albalith	lb.	.04½@	.04¾
Lithopone, Azolith	lb.	.04½@	.04¾
Titanium oxide	lb.	.21 @	—
Titanox B	lb.	.06½@	.07
Titanox C	lb.	.06½@	.07
Zinc Oxide—American Process			
American Azo:			
ZZZ (lead free)	lb.	.05¾@	.06
ZZ (leaded)	lb.	.05½@	.05¾
Horsehead Lead Free Brand:			
Selected	lb.	.05¾@	.06
Special	lb.	.05¾@	.06
XX Red	lb.	.05¾@	.06
XX	lb.	.05¾@	.06
XX Green	lb.	.05¾@	.06
Leaded Brand, Standard	lb.	.05½@	.05¾
Sterling	lb.	.05½@	.05¾
Superior	lb.	.05½@	.05¾
Lehigh	lb.	.05¼@	.05½
U. S. P., bbls.	lb.	— @	.12¾
Kadox, black label	lb.	.09⅝@	.09⅞
Blue label	lb.	.08⅝@	.08⅞
Red label	lb.	.07¼@	.07½
Cryptone, No. 19	lb.	.06½@	.06¾
Cryptone CB, No. 21	lb.	.06½@	.06¾
XX Zinc Sulphide, bbls.	lb.	— @	.13
St. Joe, black label	lb.	.05¾@	.06
green label	lb.	.05¾@	.06
red label	lb.	.05¾@	.06
Zinc Oxide—French Process			
Anaconda, lead free	lb.	.05¾@	.06
Anaconda, selected lead free	lb.	.06¼@	.06½
Florence White seal, bbls.	lb.	— @	.10⅞
Green seal	lb.	.09⅝@	.09⅞
Red seal	lb.	.08⅝@	.08⅞
Yellows			
Chrome	lb.	.16½@	.17
Ocher, domestic	lb.	.01⅝@	.02

BLACKS

Arrow "Aerfloted"			
c.l. f.o.b. works, bags	lb.	.02¾@	—
c.l. f.o.b. works, cases	lb.	.04¼@	—
less c.l. f.o.b. works	lb.	.05¼@	.07
Arrow "Aerfloted" Specification, c.l. f.o.b. wks., bags	lb.	.03 @	—
Bone, powdered	lb.	.05½@	.12½
Carbon, compressed	lb.	.02¾@	.07
uncompressed	lb.	.02¾@	.07
"Certified," Cabot			
c.l. f.o.b. works, bags	lb.	.02¾@	—
c.l. f.o.b. works, cases	lb.	.04¼@	—
less c.l. f.o.b. works	lb.	.05¼@	.07
"Disperso" f.o.b. La.	lb.	.028 @	.071
f.o.b. Texas	lb.	.02¾@	.07
Drop, bbls.	lb.	.05½@	.14
"Excello," compressed	lb.	.03 @	—
"Fumonex"	lb.	.02½@	.06
"Gastex"	lb.	.02½@	.06
Lampblack	lb.	.07 @	.10
"Micronex"			
c.l. f.o.b. works, bags	lb.	.03 @	—
c.l. f.o.b. works, cases	lb.	.04½@	—
less c.l. f.o.b. works	lb.	.05½@	.07
"Supreme"	lb.	.02¾@	—
Thermatomic—"P 33"	lb.	—	—
"Thermax"	lb.	—	—
United. "Dixie" and "Kosmos"			
c.l. f.o.b. works, bags	lb.	.02¾@	—
c.l. f.o.b. works, cases	lb.	.04¼@	—
less c.l. f.o.b. works	lb.	.05¼@	.07
"Velvetex"	lb.	.02 @	.05

COMPOUNDING MATERIALS

Aluminum Flake	ton	21.85 @	24.50
Ammonia carbonate, lump	lb.	.10½@	.12
Asbestine	ton	13.40 @	14.00
Barium carbonate	ton	56.50 @	57.00
Barium Dust	lb.	.05 @	.06
Barytes southern off-color	ton	12.00 @	18.00
Western prime white	ton	33.00 @	—
Basofor	lb.	.04½@	—
Bentonite	lb.	.02 @	.03
Blanc fixe dry f.o.b. works	ton	75.00 @	90.00
Carrara filler	lb.	.01¾@	.02
Catalpo (fact.)	lb.	.02 @	—
Chalk, precipitated			
Suprex white, extra lt.	ton	60.00 @	70.00
heavy	ton	45.00 @	55.00
Clay, Kaolin, domestic	ton	8.00 @	9.00
Aerfloted, Suprex	ton	6.50 @	8.00
Congaree	ton	9.00 @	—
Dark Blue Ridge	ton		
Dixie	ton		
Langford	ton		
Lexington	ton	10.00 @	22.00
Par	ton		
Tensulite		15.00 @	—
Glues, extra white	lb.	.20 @	.25
medium white	lb.	.16 @	.20
Kalite No. 1	ton	30.00 @	60.00
Kalite No. 3	ton	40.00 @	70.00
Magnesia, carbonate	lb.	.08¾@	.11
Mica	lb.	.04½@	—
Rotten Stone (powdered)	lb.	.02 @	.05
Soapstone, powdered	ton	15.00 @	22.00
Starch, powdered	cwt.	— @	2.57
Talc, domestic	ton	12.00 @	15.00
Pyrax A	ton		
Whiting, commercial	cwt.	.85 @	1.00
English cliffstone	cwt.	1.50 @	1.70
Sussex	ton		
Witco	ton	20.00 @	—
Zinc Carbonate	lb.	.09½@	.10½
Zinc Stearate	lb.	.18½@	.22

MINERAL RUBBER

Genasco (factory	ton	40.00 @	42.00
Granulated M. R.	ton		
Hard Hydrocarbon	ton		
Parmr, solid	ton	28.00 @	48.00
Pioneer. MR, sclid	ton	40.00 @	42.00
Pioneer-granulated	ton	50.00 @	52.00
R & H Hydro-Carbon	ton	27.05 @	29.00

SOFTENERS

Acids			
Nitric, 36 degrees	cwt.	5.00 @	5.25
Sulfuric, 66 degrees	cwt.	1.60 @	1.95
Tartaric, crystals	lb.	— @	.26½
Acids, Fatty			
Laurex	lb.	.15 @	.16
Stearex	lb.	.13 @	.17
Stearic, double pressed	lb.	.17 @	.22
Alkalies			
Caustic soda, 76%	cwt.	2.90 @	—
Soda ash, 58% C.L.	cwt.	1.17½@	—
Oils			
Corn, refined, bbls.	lb.	.07 @	.08¾
Cottonseed, crule		— @	.04½
Cycline	gal.	.27 @	.34
Degras (c.l. 100 bbls.)	lb.	.03¾@	—
Less c.l. (10-25 bbls.)	lb.	.04 @	—
Lots less than 10 bbls.	lb.	.04¼@	.04½
Fluxrite	lb.	.05½@	.06½
Palm Lagos	lb.	.04 @	.05
Niger	lb.	.03½@	.04
Para-Flux	gal.	.17 @	—
Petrolatum, white	lb.	.08 @	.08½
Pigmentaroil	gal.	.18 @	.23
Pine, steam distilled	gal.	.54 @	.61
destructively distilled	gal.	.54 @	.55
Witco Palm Oil	lb.	.07½@	—
Witco Softener (f.o.b. wks.)	lb.	.02 @	—
Resins and Pitches			
Pitch, Burgundy	lb.	.06½@	.07½
coal tar	gal.	.05½@	.06
pine, 200 lb. gr. wt. bbl.		7.00 @	—
Rosin, grade K, 280 lb. bbl.		— @	4.60
Pigmentar	gal.	.18 @	.23
Tar Retort, 50 gal.	bbl.	13.50 @	15.00
Solvents			
Acetone, pure	lb.	— @	.10
Alcohol, denatured,			
No. 1 bbls.	gal.	.28 @	.29
Benzol, 90%	gal.	.20 @	.21
Carbon, bisulfide	lb.	.05½@	.06⅓
Carbon, tetrachloride	lb.	.06¼@	.07
Dryolene (f.o.b. Okla.)	gal.	.10 @	.10½
Gasoline, steel bbls.	gal.	.16 @	—
Naphtha, solvent	gal.	.26 @	.28
Rub-Sol (f.o.b. Okla.)	gal.	.09 @	—
Turpentine, spirits	gal.	— @	.37¼
wood	gal.	— @	.40
destructively distilled	gal.	.35 @	—
Waxes			
Beeswax, white	lb.	.34 @	.36
Carnauba	lb.	.26 @	.28
Ceresin, white	lb.	.10 @	.11
Montan, crude	lb.	.06½@	.07
Ozokerite, black	lb.	.24 @	.25
green	lb.	.26 @	.30
Paraffin (c.l.—f.o.b. N. Y.)			
Yellow crude scale	lb.	.02½@	—
White crude scale 124/126	lb.	.02½@	—
Refned, 125/127	lb.	.03¾@	—
Refined, 128/130	lb.	.03¾@	—
Refined, 135/137	lb.	.05¼@	—
Refined, 138/140	lb.	.07¼@	—

ANTI-OXIDANTS

AgeRite, Gel	lb.		
Powder	lb.		
Resin	lb.		
White	lb.		
Albasan	lb.	.70 @	.75
Antox	lb.		
B-L-E	lb.	.57 @	.60
Neozone	lb.		
Oxynone	lb.	.68 @	.80
Resistox	lb.	.54 @	.57
Retardex	lb.	.35 @	.40
Stabilite	lb.	.57 @	.62
Stabilite Alba	lb.	.70 @	.75
VGB	lb.	.55 @	.66

SPECIALTIES

Aromatics- Rodo	lb.		
Sunproof	lb.	.35 @	.37½
Sponge Paste	lb.	— @	.30
Tonox	lb.	.56 @	.60

SUBSTITUTES

Black	lb.	.07 @	.09
White	lb.	.08 @	.14
Brown	lb.	.07 @	.11

VULCANIZING INGREDIENTS

Sulfur Chloride (drums)	lb.	.03½@	.04½
Sulfur flour,			
Ref'n'd. 100% pure (bags)	cwt.	2.40 @	2.75
Commercial (bags	cwt.	1.75 @	2.10
Telloy	lb.		
Vandex	lb.		

TIRES & TUBES
CRUDE RUBBER

STATISTICAL SECTION

AUTOMOBILES
GASOLINE

IT IS apparent that the statistical position of crude rubber is going to remain at more or less a "status quo" so long as shipments from producing centers continue to show practically no decline and the industrial economic conditions permit no advances in consumption. Prices on the markets of London and New York have remained practically unchanged during the last month. There is no single factor in the situation which can be termed encouraging for an advance in market levels. Stocks of crude rubber have shown little fluctuation in any of the leading centers although British stocks have declined slightly. Automobile production, although holding up, has not met expectations. Activity in production in the United States has shown some spasmodic advances but in general tire sales and especially replacement sales, have not been particularly encouraging. Latest figures covering imports and exports on crude rubber from the leading producing and consuming centers have been added to the appropriate tables in this section.

PLAN OF THE SECTION

The statistics included in this section have been chosen for their constant importance to the rubber industry. The tables are reprinted in the same relative position in every issue, each table being kept current by the addition of new figures as soon as they become available.

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U. S. Imports and Exports of Crude Rubber

	Gross Imports			Re-exports			Net Imports
YEARS	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Long Tons	Total Declared Value	Average Declared Value per pound Cents	Long Tons
1921	185,394	73,772,677	17.76	5,716	2,414,924	18.86	179,678
1922	301,076	101,843,188	15.10	4,809	1,921,828	17.84	296,267
1923	309,144	185,060,304	26.72	8,772	5,672,319	28.87	300,372
1924	328,056	174,231,331	23.71	10,309	6,057,587	26.23	317,747
1925	396,642	429,705,014	48.36	14,827	19,847,753	59.76	381,815
1926	413,338	505,817,807	54.63	17,671	22,470,583	56.77	395,667
1927	426,258	339,874,774	35.60	27,775	24,735,488	39.76	398,483
1928	439,731	244,854,973	25.03	32,159	18,128,361	25.17	407,572
1929	560,084	239,178,783	19.15	36,485	16,868,733	20.64	523,599
1930	482,082	139,134,330	12.89	30,205	9,316,205	13.77	451,877
1931	497,138	72,918,949	6.54	25,595	4,255,572	7.42	471,543
1930:							
Jan.	47,496	17,793,563	16.72	3,144	1,077,415	15.30	44,352
Feb.	42,687	14,798,240	15.48	2,280	960,790	18.80	40,407
Mar.	44,976	14,653,243	14.54	3,187	1,192,708	16.71	41,789
Apr.	45,423	14,783,605	14.53	2,688	892,532	14.82	42,735
May	42,692	13,373,232	13.98	3,154	1,085,432	15.37	39,538
June	39,993	12,215,848	13.79	3,174	1,028,653	14.47	36,819
July	35,182	10,553,944	13.39	2,807	759,260	12.08	32,375
Aug.	35,713	9,666,362	12.08	2,357	655,778	12.42	33,356
Sept.	35,380	8,460,812	10.68	1,514	430,772	12.70	33,866
Oct.	46,069	9,893,980	9.59	2,432	419,325	7.70	43,637
Nov.	29,401	5,700,086	8.66	1,300	271,348	9.32	28,101
Dec.	37,300	7,175,242	8.59	2,168	542,197	11.17	35,132
1931:							
Jan.	36,307	7,190,591	8.84	1,706	350,480	9.17	34,601
Feb.	34,005	6,564,969	8.62	1,799	357,078	8.86	32,206
Mar.	40,393	7,356,505	8.13	2,800	534,180	8.52	37,593
Apr.	44,536	7,712,941	7.73	2,607	528,947	9.06	41,929
May	35,526	5,886,638	7.40	2,501	418,301	7.47	33,025
June	46,233	6,918,900	6.68	2,749	440,604	7.15	43,484
July	43,469	6,023,748	6.19	1,435	223,587	6.96	42,034
Aug.	38,669	5,138,404	5.93	2,324	345,953	6.65	36,345
Sept.	38,494	4,970,324	5.76	1,362	187,431	6.14	37,132
Oct.	41,131	4,803,582	5.21	1,527	203,574	5.95	39,604
Nov.	43,435	4,742,218	4.72	1,403	198,284	6.31	43,435
Dec.	53,536	5,610,129	4.68	2,462	326,382	5.91	51,070
1932:							
Jan.	33,221	3,387,505	4.55	1,524	185,466	5.43	31,697
Feb.	27,959	2,690,250	4.29	1,915	222,584	5.19	26,044
Mar.	45,197	4,251,801	4.19	2,227	240,128	4.84	42,970
April	37,903	3,181,343	3.74	2,128	196,934	4.53	35,775
May	34,182	2,798,914	3.71	1,505	144,561	4.30	32,677

U. S. Consumption of Crude Rubber

(Rubber Manufacturers' Association statistics raised to 100 per cent—All figures in long tons)

Figures on Monthly Basis

	1925	1926	1927	1928	1929	1930	1931	1932
Jan.	29,638	32,196	31,518	34,403	43,002	36,194	28,557	27,962
Feb.	29,761	31,136	30,137	33,702	41,594	33,302	28,797	30,011
Mar.	33,498	32,936	36,141	35,688	44,730	35,540	32,788	27,828
Apr.	34,139	32,696	35,871	32,772	47,521	39,686	33,321	25,953
May	35,322	29,364	34,592	37,333	49,233	39,386	37,817	29,197
June	35,822	28,598	33,801	37,676	43,227	34,195	37,916	—
July	36,053	27,577	29,219	37,407	41,526	29,508	31,937	—
Aug.	35,909	34,533	33,460	42,927	38,274	30,850	27,586	—
Sept	31,691	32,904	27,214	39,882	34,707	25,515	23,638	—
Oct.	29,047	29,936	26,790	40,857	34,800	27,516	22,277	—
Nov.	28,253	28,080	26,792	37,461	27,659	23,691	22,943	—
Dec.	28,748	26,293	25,492	31,232	23,531	21,687	21,409	—
Totals	388,481	366,149	371,027	441,340	469,804	375,980	348,986	—

Figures on Quarterly Basis

Quarter	1925	1926	1927	1928	1929	1930	1931	1932
Jan./Mar.	95,263	94,301	99,216	103,558	128,565	101,610	89,652	—
Apr./June	104,099	87,109	103,242	103,500	139,292	112,229	107,755	—
July/Sept.	99,493	93,793	89,210	117,573	113,746	85,261	83,632	—
Oct./Dec.	85,789	83,212	80,860	117,597	84,872	72,020	65,645	—
Totals	384,644	358,415	372,528	442,227	466,475	371,120	346,684	—

Note—The Rubber Association estimates its monthly rubber consumption figues to be 80 per cent complete. Up until 1925 the quarterly figures were likewise estimated to be 90 per cent complete; beginning with 1925 an estimate of 92 per cent completeness has been used. These estimates have been used in raising the figures in this table to 100 per cent. The quarterly figures are generally regarded as the most authentic; the monthly figures may be accepted as preliminary.

U. S. Consumption of Gasoline

(In Thousands of Barrels of 42 Gallons)

	1930	1931	1932		1930	1931	1932
January	25,731	26,844	26,845	July	38,256	39,459	—
February	26,509	26,133	25,344	August	37,433	39,459	—
March	31,029	31,037	29,451	September	37,823	36,670	—
April	34,549	33,400	30,252	October	32,267	35,051	—
May	36,497	35,716	—	November	30,984	30,640	—
June	35,902	38,375	—	December	29,094	30,529	—

Daily Spot Closing Prices of Ribbed Smoked Sheet Rubber—*New York Market, in Cents per Pound*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Ave.
1930																																
January	—	15⅞	15⅝	15⅝	—	15⅝	15⅝	15	14⅞	14½	14⅝	—	—	14⅞	14⅝	14⅞	15½	15½	—	14¾	14⅜	15½	—	15⅝	15¼	15¼	15⅝	15¼	15¼	15¼	15¼	15¼
February	15¼	—	15⅝	15	15¼	15⅝	15½	15½	—	15⅞	16	—	15⅞	15⅞	15⅞	16	16	16⅛	16⅜	16⅝	16½	16	16	16	16	15⅝	15⅞	—	—	—	—	15⅞
March	15⅝	15⅝	15⅝	15	15⅝	15⅝	15⅝	15	—	15⅝	15	15	15⅝	15⅝	15⅝	15⅝	15½	15⅝	15⅝	15⅝	15⅝	15½	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	15⅝	—	15⅝	15⅝
April	15¼	15½	15½	15¼	15¼	15¼	—	15¼	15¼	15¼	15¼	15⅛	14⅞	15	15	15	—	—	13⅞	13⅝	14⅛	14⅜	14⅛	14¼	14⅜	14⅜	14⅜	14⅜	14¼	14¼	—	15
May	14⅜	14⅜	14⅜	14¼	14¼	—	14¼	14⅜	14⅜	14⅜	14⅜	14⅜	14⅜	14⅜	14⅜	14½	14¼	14⅛	14	13⅞	14	14⅛	14	14	14	14	14	14	14	—	—	14¼
June	—	13⅜	13⅜	13⅜	13⅜	13⅜	13⅜	13⅜	12⅞	12⅞	12⅝	12⅝	12⅝	12⅝	12⅝	12⅝	12⅝	12	11⅞	11⅞	12	12	12	12	12⅛	12⅛	12⅛	12⅛	12⅛	—	—	12½
July	12¼	12¼	12	—	12	—	12	11⅞	11⅝	11⅝	11⅝	11¼	11¼	11¼	11¼	11¼	11¼	11¼	10⅞	—	10⅞	11⅛	10⅞	10⅞	10⅞	10⅞	10⅞	10⅝	10½	10½	10½	11¼
August	10⅜	—	10½	10½	10½	10½	10¼	10¼	10¼	—	10	9¾	9¾	9¾	9¾	9¾	9¾	9¾	9½	9¾	9¾	9¾	9¾	9¾	9¾	9¾	9¾	9¾	9¾	—	—	10
September	9⅝	9⅝	9⅝	9⅝	9	8½	—	8¼	8¼	8¼	8⅛	8¼	8¼	8¼	8¼	8¼	8¼	8⅜	8	8	8	8	8	8	8	8	8	8	8	8	—	8¼
October	7½	8¼	8¼	8	—	8	8	8	8	8	7⅞	8	8	7⅞	8	8	8	7⅞	8	8	8	8	8	8	8	8	8	8	8	8	8	8
November	8½	—	8⅝	8⅝	—	8⅝	8⅝	8⅝	—	8½	8½	—	—	9¼	9¼	9¼	9¼	9⅛	9⅝	9⅝	9⅝	9¼	9¼	9¼	9¼	9¼	9¼	9¼	9¼	9¼	8⅞	9
December	9½	9½	9½	9¼	9¼	9¼	—	9⅜	9½	9⅜	9⅜	9⅜	9⅜	—	9	9	8⅞	9	9⅜	8⅞	—	8½	8⅝	8⅝	8⅝	8⅝	8¾	8⅝	8½	8⅜	8⅝	9
1931																																
January	—	8⅜	8⅜	—	8½	8⅜	8⅜	8⅜	8⅜	8⅜	—	8⅜	8⅜	8⅜	8½	8⅜	8⅜	—	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8¼	8⅜
February	—	7¾	7¾	7⅞	7⅞	7⅞	7¾	7¾	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7½	7½	7½	7½	7½	7½	7½	7½	7½	7½	7½	7½	7¾
March	—	7¾	8	8	8¼	8¼	8¼	—	8	8	8	8	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞
April	6⅝	6⅝	—	—	6⅛	6¼	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜
May	6	6	—	—	6⅛	6⅛	6⅛	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜	6⅜
June	6⅜	6⅜	6⅜	6⅜	6⅛	6½	6¼	6¼	6¼	6¼	6¼	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛	6⅛
July	6⅜	6⅜	6⅜	6⅜	—	6⅜	—	6⅝	6½	6⅝	6⅝	6½	6½	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝	6⅝
August	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5½	—	5⅝	5⅝	—	5½	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝	5⅝
September	5⅜	5⅜	5⅜	5⅜	—	5⅜	—	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜	5⅜
October	4¾	4¾	4¾	—	4¾	4¾	—	4¾	4¾	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝	4⅝
November	4½	4½	4½	4½	4½	—	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½
December	4⅜	4⅜	4⅜	—	4⅜	4⅜	—	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜
1932																																
January	—	—	—	4½	4½	4½	4½	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4⅜	4½
February	—	4⅜	4⅜	4⅜	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	4
March	3	3½	3½	3½	3	3	—	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
April	—	—	—	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
May	3	3	—	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
June	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝	2⅝
July	2⅝	2⅝	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Spot Closing Prices—Ribbed Smoked Sheets

(New York Market)

Average Price per Pound for Years 1910-1925

Year	Cents	Year	Cents	Year	Cents	Year	Cents
1910	206.60	1914	65.33	1918	60.15	1922	17.50
1911	141.30	1915	65.85	1919	48.70	1923	29.45
1912	121.60	1916	72.50	1920	36.30	1924	26.20
1913	82.04	1917	72.23	1921	16.36	1925	72.46

Average Monthly Price per Pound Since 1926

Month	1926 Cents	1927 Cents	1928 Cents	1929 Cents	1930 Cents	1931 Cents	1932 Cents
Jan.	79.50	38.75	40.25	20.14	15.24	8.34	4.38
Feb.	62.25	38.25	32.75	23.97	15.85	7.70	4.03
Mar.	59.00	41.04	26.82	24.55	15.34	7.71	3.35
Apr.	51.25	40.86	18.97	21.18	14.93	6.43	3.02
May	47.75	40.76	18.99	21.46	14.24	6.49	3.09
June	42.50	37.25	19.59	20.64	12.45	6.35	2.66
July	41.03	34.87	19.40	21.30	11.24	6.37	—
Aug.	38.50	35.12	19.46	20.59	9.96	5.38	—
Sept.	41.00	33.67	18.47	20.37	8.28	5.08	—
Oct.	42.50	34.32	18.83	19.67	8.20	4.87	—
Nov.	38.50	37.58	18.26	16.62	9.01	4.65	—
Dec.	38.25	40.63	17.97	16.12	9.05	4.64	—
Average for Year	48.50	37.72	22.48	20.55	11.98	6.17	—

London Closing Prices of Ribbed Smoked Sheet

(In Pence Per Pound)

Day	Apr.	May	June	July	Day	Apr.	May	June	July
1	1⅞	—	1 11/16	1 11/16	17	—	—	1¾	—
2	1⅞	1⅞	1 11/16	1 11/16	18	1⅞	1⅞	1¾	—
3	—	2	1 11/16	—	19	1⅞	1⅞	—	—
4	1⅞	2	1 11/16	1¾	20	1⅞	1⅞	1¾	—
5	1⅞	2	—	—	21	1⅞	1⅞	1¾	—
6	1⅞	2	1 11/16	—	22	1⅞	—	1¾	—
7	1¾	2⅛	1 11/16	—	23	1⅞	1¾	1¾	—
8	1¾	—	1 11/16	—	24	—	1¾	1¾	—
9	1¾	2⅛	1 11/16	—	25	1⅞	1⅝	1¾	—
10	—	2	1 11/16	—	26	2	1⅝	1¾	—
11	1¾	2	1 11/16	—	27	1⅞	1⅝	1 11/16	—
12	1⅞	1⅞	—	—	28	2	1⅝	1 11/16	—
13	1⅞	1⅞	1 11/16	—	29	2	—	1¾	—
14	1⅞	1⅞	1¾	—	30	2	1⅝	1¾	—
15	1⅞	—	1 11/16	—	31	—	1⅝	—	—
16	1⅞	—	1 11/16	—					

Average Monthly Price Per Pound

Month	1929 Pence	1930 Pence	1931 Pence	1932 Pence	Month	1929 Pence	1930 Pence	1931 Pence	1932 Pence
Jan.	9.942	7.471	4.160	3.052	Aug.	10.505	4.880	2.385	—
Feb.	11.875	7.948	3.823	2.760	Sept.	10.160	4.075	2.524	—
Mar.	12.135	7.595	3.822	2.047	Oct.	9.620	4.023	2.898	—
Apr.	10.490	7.391	3.082	1.876	Nov	8.442	4.440	2.890	—
May	10.717	6.926	3.035	1.825	Dec.	7.958	4.516	3.115	—
June	10.580	6.195	3.082	1.750	Average for				
July	11.065	5.648	3.048	—	Year	10.291	5.926	3.155	—

Spot Closing Cotton Prices

(Middling Upland Grade—New York Market)

Recent Daily Price Per Pound

Day of Month	May	June	July	Day of Month	May	June	July	Month Day of	May	June	July
1	—	4.92	5.95	11	5.75	5.05	—	21	5.85	5.35	—
2	5.70	5.14	—	12	5.70	—	—	22	—	5.30	—
3	5.75	5.02	—	13	5.65	5.15	—	23	5.95	5.30	—
4	5.65	5.22	—	14	5.65	5.20	—	24	5.75	5.30	—
5	5.70	—	5.95	15	—	5.35	—	25	5.75	5.30	—
6	5.90	5.20	—	16	5.65	5.35	—	26	5.65	—	—
7	5.90	5.20	—	17	5.65	5.25	—	27	5.60	5.35	—
8	—	5.10	—	18	5.75	5.20	—	28	5.60	5.35	—
9	5.70	5.00	—	19	5.85	—	—	29	—	5.55	—
10	5.70	5.10	—	20	5.90	5.30	—	30	—	5.80	—
								31	5.40	—	—

Average Monthly Price Per Pound

	1929 Cents	1930 Cents	1931 Cents	1932 Cents		1929 Cents	1930 Cents	1931 Cents	1932 Cents
Jan.	20.22	17.21	10.27	6.65	Aug.	18.62	12.03	7.21	—
Feb.	20.21	15.62	10.96	6.85	Sept.	18.83	10.85	6.52	—
Mar.	20.19	15.13	10.90	6.86	Oct.	18.46	10.63	6.32	—
Apr.	20.29	16.39	10.19	6.16	Nov.	17.53	10.96	6.44	—
May	19.41	16.43	9.38	5.72	Dec.	17.28	10.02	6.24	—
June	18.74	14.48	9.05	5.22	Average for				
July	18.62	13.10	9.28	—	Year	19.03	13.57	8.56	—

World Stocks of Crude Rubber

ON HAND OR AFLOAT TO THE U. S.

At End of	ON HAND 1930	ON HAND 1931	ON HAND 1932	AFLOAT 1930	AFLOAT 1931	AFLOAT 1932	ON HAND AND AFLOAT 1930	ON HAND AND AFLOAT 1931	ON HAND AND AFLOAT 1932
Jan.	131,744	209,487	322,860	61,863	56,187	42,234	193,607	265,674	365,094
Feb.	148,863	212,833	322,117	63,404	63,680	51,728	207,267	276,513	373,845
Mar.	141,843	217,804	334,566	63,646	63,133	44,190	205,489	280,937	378,756
Apr.	148,272	228,382	343,099	63,261	56,700	40,387	211,533	285,082	383,486
May	146,179	220,799	———	68,168	73,564	——	214,347	294,363	———
June	151,551	225,536	———	58,657	69,421	——	210,209	294,957	———
July	152,001	234,822	———	58,326	66,873	——	210,327	301,695	———
Aug.	158,604	240,816	———	61,168	61,469	——	219,772	302,285	———
Sept.	169,927	254,324	———	60,923	62,420	——	230,851	316,744	———
Oct.	185,470	273,456	———	51,122	68,427	——	236,593	341,883	———
Nov.	189,925	292,493	———	52,538	77,443	——	242,463	369,936	———
Dec.	200,998	322,826	———	56,035	53,940	——	257,033	376,766	———

(Rubber Manufacturers' Association figures raised to 100%)

STOCKS IN GREAT BRITAIN

Stocks in London

(No. of Tons in Wharves and Warehouses, including Latex)

At end of	1930	1931	1932	At end of	1930	1931	1932
Jan.	60,434	81,093	67,166	July	81,048	81,317	——
Feb.	64,557	82,265	65,942	Aug.	80,931	81,560	——
Mar.	68,923	84,736	64,280	Sept.	83,329	79,692	——
Apr.	74,676	86,982	61,848	Oct.	77,647	76,778	——
May	77,312	86,726	56,089	Nov.	76,887	73,911	——
June	80,260	83,071	——	Dec.	78,013	69,470	——

At End of Recent Weeks

	First Saturday	Second Saturday	Third Saturday	Fourth Saturday	Fifth Saturday
1932					
January	69,504	68,967	68,272	67,545	67,157
February	67,410	67,824	67,314	65,923	
March	65,459	65,121	65,014	64,461	
April	63,813	64,015	63,717	63,348	61,850
May	61,411	58,101	58,606	56,504	
June	55,535	54,636	52,636	51,785	
July	50,656				

Stocks in Liverpool

1932					
January	57,718	57,652	58,662	58,328	58,182
February	59,155	59,874	59,514	59,868	
March	60,288	60,776	60,922	60,775	
April	61,010	60,872	61,302	61,433	61,480
May	61,674	60,909	60,583	60,148	
June	60,119	50,551	58,601	58,441	
July	58,569				

STOCKS IN PENANG AND SINGAPORE

(Stocks held by Dealers—Quantities in Long Tons)

End of	1929	1930	1931	1932	End of	1929	1930	1931
Jan.	29,617	39,727	48,802	48,850	July	33,859	45,459	51,203
Feb.	32,373	44,371	49,283	46,954	Aug.	30,834	48,132	48,971
Mar.	29,437	45,657	49,590	46,591	Sept.	32,138	44,015	47,025
Apr.	26,474	48,473	45,868	39,663	Oct.	33,770	39,930	52,132
May	30,764	44,715	44,278	38,690	Nov.	30,963	41,674	46,497
June	30,403	42,451	47,517	——	Dec.	35,548	45,963	45,795

STOCKS IN OTHER CENTRES

1930 End of 1931:	Malaya Mainland	Afloat for Europe	Holland	Colombo	Para and Manaos
Jan.	41,620	24,500	3,168		5,124
Feb.	43,027	24,580	3,326		5,404
Mar.	40,227	21,990	3,622	3,857	4,843
Apr.	37,103	18,500	3,659		5,137
May	37,171	17,770	3,380		4,896
June	38,748	18,440	3,219	3,518	4,894
July	40,377	19,960	3,111		4,548
Aug.	40,606	18,880	3,204		4,571
Sept.	37,114	16,200	3,293	2,763	4,972
Oct.	35,381	17,800	3,100		5,465
Nov.	39,193	19,570	2,799		5,506
Dec.	41,219	20,140	2,568	3,607	5,576
1932:					
Jan.	43,938	19,090	3,065		6,342
Feb.	43,695	18,920	3,093		6,641
Mar.	43,329	17,470	3,172		6,378
Apr.	42,642	15,660	3,404		6,469
May	45,422	16,000			6,438

Rims Inspected and Passed in U. S.

(Tire and Rim Association Reports)

	Total	Per Cent Balloons		Total	Per Cent Balloons
1923	23,140,620	9.6	1927	19,700,003	79.1
1924	21,868,311	19.7	1928	24,247,282	81.6
1925	26,001,664	66.8	1929	24,141,502	80.3
1926	24,199,524	78.8	1930	17,364,096	80.1
1931			1931		
January	681,301	67.9	July	812,642	74.0
February	1,010,774	73.9	August	924,236	80.8
March	1,425,336	81.4	September	504,879	70.4
April	1,717,652	79.9	October	281,749	62.7
May	1,508,349	83.7	November	638,138	78.0
June	1,084,707	77.8	December	714,037	80.1
1932			1932		
January	810,759	89.0	April	652,126	69.8
February	726,172	84.3	May	657,995	74.0
March	648,013	81.6			

U. S. Tire and Tube Statistics

(All Figures Represent Thousands)

AUTOMOBILE CASINGS

Figures for Recent Years

	1924	1925	1926	1927	1928	1929	1930	1931
Production	51,633	60,845	61,237	64,439	77,944	68,726	50,965	48,739
Shipments	50,120	59,262	59,002	64,059	74,296	69,395	53,638	48,151
Inventory[2]	7,427	8,142	10,456	10,264	13,624	11,338	9,003	110,233

Figures for Recent Months

	PRODUCTION 1930	PRODUCTION 1931	PRODUCTION 1932	SHIPMENTS 1930	SHIPMENTS 1931	SHIPMENTS 1932	INVENTORY 1930	INVENTORY 1931	INVENTORY 1932
Jan.	4,485	3,675	3,462	4,406	3,744	3,253	11,925	8,957	7,912
Feb.	4,555	3,985	3,871	4,195	3,402	2,553	11,410	9,536	9,172
Mar.	4,863	4,663	3,671	4,717	4,122	2,954	12,513	10,014	9,878
Apr.	5,643	4,944	——	5,089	4,932	——	13,076	10,031	——
May	5,717	5,679	——	5,216	5,415	——	13,432	10,312	——
June	5,122	5,672	——	5,294	5,572	——	13,277	10,447	——
July	3,991	4,926	——	5,447	5,462	——	11,812	9,919	——
Aug.	4,166	3,906	——	5,175	4,960	——	10,848	8,896	——
Sept.	3,365	3,172	——	4,405	3,932	——	9,812	8,158	——
Oct.	3,582	2,974	——	3,499	2,852	——	9,803	8,300	——
Nov.	2,654	2,500	——	2,834	2,887	——	9,595	7,919	——
Dec.	2,814	2,643	——	3,361	2,871	——	9,003	7,744	——

AUTOMOBILE INNER TUBES

Figures for Recent Years

	1924	1925	1926	1927	1928	1929	1930	1931
Production	70,706	82,614	76,618	70,823	80,180	68,829	52,420	48,333
Shipments	68,106	81,004	71,591	72,896	77,127	70,592	54,938	50,021
Inventory[2]	11,052	11,313	16,200	13,692	16,117	12,807	9,999	112,121

Figures for Recent Months

	PRODUCTION 1930	PRODUCTION 1931	PRODUCTION 1932	SHIPMENTS 1930	SHIPMENTS 1931	SHIPMENTS 1932	INVENTORY 1930	INVENTORY 1931	INVENTORY 1932
Jan.	4,607	3,623	3,308	4,857	4,062	3,529	12,704	9,439	7,719
Feb.	4,634	3,916	3,821	4,337	3,400	2,728	13,036	9,921	8,760
Mar.	4,941	4,450	3,502	4,727	3,789	2,686	13,179	10,475	9,448
Apr.	5,510	4,617	——	4,848	4,636	——	13,784	10,413	——
May	5,535	5,413	——	5,074	5,281	——	13,852	10,549	——
June	4,950	5,358	——	5,265	5,397	——	13,612	10,504	——
July	3,939	4,955	——	5,855	5,831	——	11,657	9,589	——
Aug.	4,796	4,435	——	5,762	5,301	——	10,737	8,774	——
Sept.	3,817	3,449	——	4,541	4,150	——	10,065	8,095	——
Oct.	3,951	3,077	——	3,472	2,813	——	10,517	8,321	——
Nov.	2,680	2,443	——	2,788	2,594	——	10,313	8,119	——
Dec.	3,060	2,597	——	3,412	2,767	——	9,999	7,922	——

(1) Rubber Manufacturers' Association figures, raised to 100%. The Association estimates its figures to be 75% complete up until 1929 and 80% complete beginning with 1929, and that basis has been accepted when preparing the statistics in this table.

(2) Held by manufacturers at end of period indicated.

Automobile Production

	United States Total	United States Passenger Cars	United States Trucks	Canada Total	Canada Passenger Cars	Canada Trucks	Grand Total
1926	4,298,799	3,808,753	490,046	205,092	164,483	40,609	4,503,891
1927	3,393,887	2,938,868	453,019	179,426	146,850	32,556	3,573,313
1928	4,357,384	3,826,613	530,771	242,382	196,737	45,645	4,599,944
1929	5,358,420	4,587,400	771,020	263,295	207,498	55,797	5,621,715
1930	3,355,986	2,814,452	540,534	154,192	125,442	28,750	3,510,178
1931							
Jan.	171,848	138,317	33,531	6,496	4,552	1,944	178,344
Feb.	219,940	180,419	39,521	9,871	7,529	2,342	229,811
Mar.	276,405	231,244	45,161	12,993	10,483	2,510	289,398
Apr.	336,939	285,693	50,015	17,159	14,043	3,116	354,098
May	317,163	269,420	45,695	12,738	10,621	2,117	329,901
June	250,640	208,158	41,304	6,835	5,583	1,252	257,475
July	218,490	183,107	35,854	4,220	3,151	1,069	222,710
Aug.	187,197	155,425	31,772	4,544	3,426	1,118	191,741
Sept.	140,566	109,228	31,338	2,646	2,108	538	143,212
Oct.	80,142	58,415	21,727	1,440	761	679	81,582
Nov.	68,867	49,184	19,683	1,247	812	435	70,114
Dec.	121,533	97,897	23,636	2,432	408	2,024	123,965
Total	2,389,730	1,973,090	416,640	82,621	63,477	19,144	2,472,351
1932							
Jan.	119,344	98,785	20,541	3,731	3,112	619	123,075
Feb.	117,418	94,110	23,308	5,477	4,494	983	126,621
Mar.	118,959	99,399	19,560	8,318	6,604	1,714	127,277
April	148,013	120,872	27,141	6,810	5,660	1,150	154,823
April	148,326	120,937	27,389	8,221	7,269	952	193,370
May	185,149	157,756	27,393				

Exports of Crude Rubber from Principal Producing Countries

(Long Tons

	BRITISH MALAYA[1]							DUTCH EAST INDIES[4]							
	Gross Exports	Imports	Gross Exports Minus Imports	Ceylon[2]	India & Burma[3]	Sarawak[4]	British North Borneo[5]	Siam[6]	Java & Madura	Sumatra E. Coast	Other D.E.I.	Indo-China[3]	Amazon Valley	All Other[6]	World Total[7]
1923	252,016	70,432	181,584	39,971	6,416	5,705	4,237	1,718	32,930	46,344	57,822	5,067	16,765	7,856	406,415
1924	259,706	108,524	151,182	39,997	7,697	6,699	4,621	2,962	42,446	54,497	80,347	6,688	23,165	9,065	429,366
1925	316,825	158,022	158,803	49,566	10,082	5,424	5,377	5,377	46,757	65,499	120,626	7,881	25,298	13,797	514,487
1926	391,328	151,243	240,085	58,962	9,874	9,155	6,079	4,027	52,186	71,413	121,231	8,203	24,298	16,017	621,530
1927	371,322	182,845	188,477	55,356	11,321	10,923	6,582	5,472	55,297	77,815	142,171	8,645	28,782	15,633	606,474
1928	409,430	149,787	259,643	57,267	10,790	10,087	6,698	4,813	58,848	82,511	121,770	9,548	21,129	10,690	653,794
1929	574,836	163,092	411,744	81,584	11,663	11,077	7,381	5,018	65,990	87,789	134,037	9,696	21,148	6,767	853,894
1930	547,043	133,876	413,167	76,970	10,782	10,309	6,781	4,251	69,755	79,396	115,254	7,665	14,260	5,651	814,241
1930:															
Mar.	47,320	12,236	35,084	6,617	1,219	976	642	391	5,796	6,612	11,214	643	1,674	536	71,314
Apr.	43,803	14,627	29,176	4,444	856	1,026	502	366	4,802	6,326	12,724	433	1,201	630	62,486
May	49,016	13,253	35,763	5,968	975	917	502	350	6,352	6,661	12,041	753	1,383	555	72,220
June	36,607	12,120	24,487	4,577	778	1,040	201	392	4,728	4,776	9,512	425	974	551	52,441
July	41,347	12,759	28,588	3,868	792	1,087	600	327	6,022	5,891	9,770	648	810	418	58,821
Aug.	47,802	10,304	37,498	7,077	600	740	600	335	5,892	7,197	9,520	394	809	382	71,044
Sept.	48,529	8,087	40,442	7,966	343	680	600	289	5,960	6,358	7,302	527	1,093	474	72,034
Oct.	47,770	7,312	40,458	7,681	591	598	650	300	5,916	6,956	6,352	667	669	449	71,287
Nov.	41,281	7,774	33,507	6,042	864	631	600*	311	5,334	6,401	8,001	654	658	238	63,241
Dec.	42,086	9,671	32,415	6,934	1,049	976	600*	335	6,254	7,196	8,476	721	1,365	353	66,674
1931:															
Jan.	41,579	11,029	30,550	7,039	1,315	770	542	424	5,923	7,348	10,328	1,218	994	295	66,746
Feb.	41,951	9,672	32,279	6,365	1,041	945	542	409	4,869	7,206	9,001	1,018	1,271	217	65,163
Mar.	48,589	12,009	36,580	5,881	1,209	930	542	536	5,434	7,104	11,258	1,233	1,338	430	72,475
Apr.	43,453	9,977	33,476	4,333	641	788	455	340	6,473	6,063	8,759	327	629	333	62,617
May	44,281	10,479	33,802	4,242	622	869	455	413	7,373	6,799	10,955	793	1,110	382	67,815
June	39,397	12,115	27,282	5,098	1,086	1,138	455	337	5,856	6,696	11,380	1,019	621	351	61,319
July	43,658	11,995	31,663	4,517	715	801	536	316	6,671	7,511	10,711	859	1,565	186	66,051
Aug.	42,832	9,063	33,769	3,763	406	692	535	210	6,397	7,044	8,641	1,097	856	241	63,651
Sept.	44,336	8,369	35,967	4,029	169	701	535	218	5,577	7,358	8,389	917	745	183	64,788
Oct.	45,911	9,955	35,956	5,547	286	872	500*	338	8,086	7,882	9,547	934	1,284	238	71,467
Nov.	48,012	9,529	38,483	4,609	408	830	500*	390	7,351	8,174	7,981	731	872	233	70,562
Dec.	35,741	11,314	24,427	6,346	572	1,115	500*	287	5,942	8,562	9,059	1,550	836	203	59,399
1932:															
Jan.	44,538	10,304	34,234	4,570	732	756	500*	457	5,155	8,815	8,703	1,248	831	199	66,200
Feb.	42,008	8,008	34,000	4,472	803	696	500*	334	4,814	6,011	6,325	1,096	352	203	59,606
Mar.	39,903	6,658	33,245	3,405	284	501	500*	217	4,946	6,863	6,252	928	715	77	57,933
Apr.	36,670	4,682	31,988	3,046	365	459	500*	130	6,722	6,090	4,856	913	487	75	55,631
May	40,297	5,677	34,620	4,140		595	500*	118	6,552	6,551	6,013	949	416	75	

(1) Malayan net exports cannot be taken as production, since imported rubber is largely wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 115 tons in 1923, 1,117 in 1924, 3,618 in 1925, 3,263 in 1926, 2,439 in 1927, 1,437 in 1928, 2,670 in 1929, and 1,274 in 1930. (2) Ceylon Chamber of Commerce statistics until 1926; rubber exported as latex is not included—such shipments were equivalent to 18 tons in 1923, 93 tons 1924, 6 tons 1925, 20 tons 1926, about ½ ton in 1927, and 1 ton in 1928, and practically none in 1929, 1930 and 1931. (3) Official statistics. (4) Imports into Singapore and Penang. (5) Exports from "Other D.E.I." are chiefly wet native rubber, which is reduced about one-third in weight by remilling; rubber exported as latex is not included which on a basis of 3½ pounds per gallon amounted to 2,342 tons in 1923, 1,008 tons 1924, 2,239 tons 1925, 44 tons in 1926, 84 tons in 1927, 1,459 tons in 1928, 1,302 tons in 1929, and 2,656 tons in 1930. (6) Calculated from official import statistics of principal consuming countries, viz., United States, United Kingdom, France, Germany, Belgium and Netherlands, and includes guayule rubber. (7) This total includes the third column for British Malaya, "Gross Exports minus Imports," and all the figures shown for the other territories. *Figure is provisional; final figure will be shown when available.

Net Imports of Crude Rubber into Principal Manufacturing Countries

(Long Tons)

	United States[1]	United Kingdom	France (h)	Germany	Canada (ac)	Japan (da)	Italy	Russia (ce)	Australia (cd)	Belgium (d)	Netherlands	Scandinavia (abcdf)	Spain (g)	Czechoslovakia (abcd)	World Total
1919	238,407	42,671	17,685	5,584	6,895	9,753	9,894	75	1,002	3,995	2,771	3,149	2,418	9	343,803
1920	249,530	56,844	13,885	11,890	11,746	5,297	6,123	62	1,815	3,840	5,510	2,292	2,008	567	371,409
1921	179,736	42,087	15,135	21,920	3,124	21,713	3,906	165	1,014	1,705	1,022	1,279	2,245	569	300,626
1922	296,594	11,724	24,352	27,546	9,207	15,934	6,430	2,493	2,643	172	—3,807	1,778	589	567	396,222
1923	301,527	12,700	27,392	18,519	13,277	15,372	8,489	2,986	1,649	2,184	792	2,528	630	1,128	409,173
1924	319,103	—11,550	30,446	22,727	14,299	19,571	8,764	2,346	3,124	2,688	—807	3,178	944	1,370	416,208
1925	385,596	4,061	32,956	33,937	19,683	11,117	11,412	7,088	4,757	2,930	875	3,149	1,155	1,558	520,274
1926	399,981	84,865	34,240	22,775	20,229	15,125	9,809	6,529	9,021	2,498	2,670	4,046	1,299	1,870	617,957
1927	403,472	60,249	34,271	38,892	26,405	20,521	11,881	12,018	9,490	6,482	636	4,224	2,055	2,672	632,768
1928	407,572	4,846	36,498	37,855	30,447	25,621	12,433	15,134	8,430	7,958	2,243	4,418	3,178	3,138	599,771
1929	528,608	122,675	55,093	49,275	35,453	34,284	17,169	11,774	15,886	9,445	3,022	6,440	864	4,650	894,638
1930	458,036	120,069	68,503	45,488	28,793	33,039	18,639	16,387	5,354	10,635	2,924	7,710	2,400	4,468	822,445
1930:															
Mar.	40,012	9,862	5,233	4,379	2,593	2,699	1,279	1,153	975	678	358	322	200*	263	74,676
Apr.	43,036	13,058	5,006	4,488	2,303	2,769	2,067	929	673	1,431	158	461	200*	255	76,834
May	40,012	9,861	5,233	4,379	2,593	2,699	1,279	1,645	64	1,250	230	274	200*	282	70,002
June	37,374	9,645	4,458	3,794	2,579	2,677	1,378	1,574	67	691	343	507	200*	282	65,569
July	32,785	7,650	3,311	3,449	3,347	1,206	587	567	84	939	172	756	200*	342	55,395
Aug.	34,513	8,369	3,953	3,515	2,108	2,170	886	149	265	888	87	747	200*	450	58,254
Sept.	34,373	16,016	5,285	4,089	1,578	2,606	1,279	1,373	414	824	221	817	200*	411	69,486
Oct.	44,385	9,095	7,403	3,747	1,942	3,951	2,460	2,782	609	769	439	1,132	200*	351	79,265
Nov.	28,437	—250	13,662	3,074	2,128	4,003	2,510	2,140	464	596	364	1,180	200*	343	58,851
Dec.	35,202	12,249	7,149	3,105	1,347	4,104	2,815	544	950	814	205	647	200*	673	70,004
1931:															
Jan.	34,873	9,730	5,954	3,847	1,709	2,861	1,036	1,775	601	986	348	464	240	635	65,059
Feb.	32,572	12,226	4,510	3,374	1,927	3,264	1,393	1,022	495	785	157	476	201	366	62,768
Mar.	37,960	12,335	4,386	3,545	3,012	2,323	418	2,531	435	862	346	400	392	507	69,452
Apr.	42,212	9,440	4,346	3,054	2,070	3,478	528	1,450	457	515	333	495	208	324	68,910
May	33,271	8,212	2,880	3,231	2,748	3,755	1,023	1,034	884	1,153	86	495	180	711	58,663
June	43,730	5,636	4,002	3,504	2,112	2,988	1,462	3,279	1,112	1,058	272	577	207	607	70,546
July	42,293	5,366	3,301	3,226	2,592	3,065	809	3,141	627	1,507	41	429	145	1,074	67,816
Aug.	36,709	5,030	3,393	2,889	2,304	3,780	912	3,137	283	955	—57	321	160	413	60,129
Sept.	37,571	5,468	4,420	4,227	1,535	5,556	693	2,335	269	1,015	191	571	99	499	64,449
Oct.	39,820	5,775	3,909	3,220	1,567	3,980	571	4,076	765	792	185	710	193	695	66,258
Nov.	43,659	2,550	2,669	2,621	1,233	3,340	545	2,417	934	729	183	745	297	954	62,876
Dec.	51,323	4,402	2,696	2,950	2,452	5,093	859	4,474	787	652	135	677	283	932	77,715
1932:															
Jan.	32,028	3,248	2,588	3,303	1,746	5,782	627	3,258	622	521	479	840	462	197	55,701
Feb.	26,483	5,930	2,898	4,356	1,723	6,781	1,189	2,931	758	506	500	708	313	306	55,382
Mar.	43,361	3,585	2,482	3,436	2,588	5,398	1,423	2,745	1,211	721	112	456	359	644	68,521
Apr.	36,326	6,826	2,956	3,737	1,600	3,684	1,083		1,549		348	474	417	1,259	
May	32,818	1,110					1,033				286				

a—Including gutta percha. b—Including balata. c—Re-exports not deducted in monthly statistics. d—Including some scrap and reclaimed rubber. e—Official statistics of rubber imports by Soviet Russia. f—Including Norway, Sweden, Denmark and Finland. g—United Kingdom and French exports to Spain except in years prior to 1925. h—French imports have been reduced 12 per cent in order to eliminate imports of gutta percha and to reduce to basis of net weight. [1]United States imports of guayule are included in this compilation. *Figure is provisional; final figure will be shown immediately it becomes available.

Domestic Production of Miscellaneous Rubber Goods

	Rubber Proofed Fabrics	Rubber Heels	Rubber Soles	Mechanical Goods Shipments
	Yards	Pairs	Pairs	Dollars
1924	25,020,000	186,279,000	(1)	$48,615,000
1925	23,988,000	206,970,000	16,211,620(2)	64,877,000
1926	29,328,000	183,312,000	12,253,000	76,789,000
1927	37,872,000	201,014,000	27,160,000	68,625,000
1928	41,179,000	235,170,000	37,645,000	69,114,000
1929	50,731,000	232,126,000	34,499,000	74,770,000
1930	42,681,000	178,059,000	29,514,000	58,465,000
1931:				
July	3,337,000	15,361,000	2,864,000	3,706,000
August	3,787,000	16,293,000	2,933,000	3,356,000
September	4,692,000	15,827,000	2,880,000	3,015,000
October	4,112,000	14,567,000	2,610,000	2,678,000
November	2,529,000	11,455,000	2,840,000	2,300,000
December	2,074,000	14,138,000	3,639,000	2,281,000
1932:				
January	2,184,000	12,317,000	3,411,000	2,463,000
February	2,448,000	14,487,000	3,461,000	2,446,000
March	2,463,000	16,368,000	3,953,000	2,638,000
April	3,021,000			
May				
June				

(1) Not available; (2) Last 9 months only.
Source: "Survey of Current of Business of the Department of Commerce."

United States Imports of Guayule, Balata, Jelutong, Liquid Latex

(All quantities in Long Tons)

	Guayule		Balata		Jelutong		Liquid Latex (1)	
	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars
1919	1,430	760,690	727	937,038	3,332	2,213,964	—	—
1920	758	345,985	1,064	1,260,043	5,672	2,068,501	—	—
1921	58	26,945	814	1,077,859	1,745	351,893	—	—
1922	127	57,040	812	978,765	2,335	403,812	—	—
1923	1,155	542,227	700	893,524	4,565	853,308	—	—
1924	1,356	536,392	464	568,456	6,165	1,237,100	2,157	864,059
1925	2,781	1,803,448	517	574,750	6,749	1,642,531	3,853	3,537,810
1926	4,805	2,562,096	354	327,213	7,263	3,127,757	3,388	4,680,386
1927	5,018	2,674,957	582	447,246	7,785	2,448,657	1,116	876,077
1928	3,075	1,755,685	781	430,855	7,552	2,540,059	4,167	2,185,579
1929	1,231	545,175	728	566,964	8,203	2,458,136	3,728	1,787,997
1930	1,096	347,338	501	422,684	5,907	1,403,244	4,449	1,506,804
1931	—	—	1,208	411,692	5,777	1,019,010	4,650	884,355
1931:								
Apr.	—	—	219	69,284	676	140,309	372	73,867
May	—	—	120	44,025	205	36,086	318	82,202
June	—	—	245	79,786	681	123,616	706	129,496
July	—	—	67	20,777	331	64,493	583	104,868
Aug.	—	—	73	30,207	652	100,536	364	60,358
Sept.	—	—	126	35,174	407	65,232	439	72,443
Oct.	—	—	100	13,846	415	75,219	267	43,238
Nov.	—	—	56	11,539	276	50,062	265	40,649
Dec.	—	—	93	37,815	643	62,657	282	41,771
1932:								
Jan	—	—	54	14,095	633	81,396	331	40,613
Feb.	—	—	100	24,702	558	84,914	439	52,183
Mar.	—	—	114	20,628	460	59,299	391	44,585
Apr.	—	—	46	10,909	317	44,165	551	46,397
May	—	—	42	9,863	566	68,028	141	27,449
June								

(1) Latex import figures not available before 1924.

Reclaimed Rubber in the United States

(All Quantities in Long Tons)

		Consumption					Consumption			
Year	Production	Tons	% to Crude	Stocks*	Year	Production	Tons	% to Crude	Stocks*
1921	36,725	41,351	24.1	.....	1926	180,582	164,500	45.9	23,218
1922	57,334	54,458	19.3	.....	1927	189,144	178,471	47.6	24,980
1923	74,766	69,534	22.7	.....	1928	208,516	223,000	50.4	24,785
1924	80,079	76,072	22.4	.....	1929	213,954	226,588	48.4	27,464
1925	132,930	137,105	35.6	13,268	1930	157,967	153,497	40.3	22,000
1931:									
Jan.	10,349	10,728	37.6	22,429	July	11,393	11,447	35.8	17,720
Feb.	10,871	10,800	37.5	18,878	Aug.	10,110	9,972	36.2	17,165
Mar.	12,988	12,534	38.3	18,375	Sept.	9,629	8,932	37.6	17,226
Apr.	13,267	11,745	35.0	18,356	Oct.	9,482	8,126	36.6	17,741
May	13,478	13,103	34.6	18,088	Nov.	7,892	7,492	32.6	17,662
June	14,066	13,045	34.4	18,505	Dec.	8,876	6,812	31.8	19,257
1932:									
Jan.	8,753	8,440	30.2	18,712	July				
Feb.	8,731	8,332	27.7	18,659	Aug.				
Mar.	8,613	7,420	26.7	19,721	Sept.				
Apr.	5,561	5,555	21.6	21,525	Oct.				
May					Nov.				
June					Dec.				

*Stocks on hand at the end of month or year. Exports of reclaimed rubber, not shown in this table, amounted to 8,540 tons in 1927, 9,577 tons in 1928, and 12,369 tons in 1929
(Rubber Manufacturers' Association figures raised to 100%)

French Rubber Trade, 1931

THE French trade in rubber goods in 1931, though reflecting world conditions through a smaller volume of business, presents a different picture than that of other major producing and exporting countries. The export trade fared better than others generally, with a decline of only 11 per cent in volume and 24 per cent in value, but at the same time internal conditions were such that imports of rubber goods increased by 5 per cent in volume and declined only 18 per cent in value, according to reports of the Department of Commerce.

Total exports for the year amounted to 20,615,300 kilos, valued at $15,227,000, as compared with 23,055,000 kilos and $19,932,000 in 1930. Imports amounted to 10,051,000 kilos, valued at $7,867,000. Of the items going to make up this trade, only vulcanized rubber in sheets, hard rubber goods, and solid tires increased the value of their exports by 20, 4, and 3 per cent, respectively. Volume increases of 42, 7, 6, and 27 per cent were registered in the export of 152,000 kilos of vulcanized rubber sheets, 501,000 kilos of rubberized fabrics, 256,000 kilos of hard rubber items, and 1,973,000 kilos of solid tires, along with other less important gains. The largest losses were sustained in exports of rubber thread, washers, and gaskets, while on a value basis rubber footwear and rubber belting exports were well below the 1930 figures.

French Exports of Rubber Goods

	1930		1931	
Class	*Quantity Kilos*	*Value*	*Quantity Kilos*	*Value*
Tires and tubes	16,252,700	$14,419,000	14,947,700	$11,036,000
Sundries and misc.	2,873,400	1,990,000	2,332,000	1,489,000
Footwear	1,869,000	1,122,000	1,393,400	733,000
Waterproof goods	849,600	1,352,000	872,000	1,179,000
Articles used in further manufacture	767,000	735,000	697,200	561,000
Hard rubber goods	242,600	138,000	256,200	144,000
Mechan'l rubber goods	200,700	176,000	116,800	85,000
Total	23,055,000	$19,932,000	20,615,300	$15,227,000

The import statistics indicate that in tires, and also footwear, the French producers are gradually losing control of the home market. In 1931 nearly 5,700,000 kilos of automobile tires and tubes were imported, as against 4,300,000 and 2,600,000 kilos in the two previous years. Primarily responsible for this loss to local manufacturers were Belgium and the United Kingdom, which furnishes 3,200,000 and 1,600,000 kilos, respectively. The increase from 539,000 to 780,000 kilos in rubber footwear is accountable to the phenomenal increase in takings from Czechoslovakia—from a mere 10,000 kilos in 1930 to over 200,000 kilos—and also an increase in Belgian importations, from 53,000 to 134,000 kilos. Other items of importance in the import trade are rubber thread, in which the United States and United Kingdom play an important part, and rubberized clothing and accessories.

Algeria is the best market for French automobile casings and in 1931 its takings amounted to $673,000, as compared with $908,000 in 1930. Tire exports to Switzerland increased slightly during the year, to place that market in second position, with a $343,000 French business, and Indo-China and Morocco followed, with totals of $331,000 and $282,000, respectively.

French rubberized fabrics find their most important outlet in the United Kingdom, exports to that market amounting to $87,000 in 1931. Belgium took $37,000 worth of these fabrics, and Switzerland, Italy, and the United Kingdom, however, registered the only gain of the countries named.

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